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GEORGE WOOD CLAPP, D.D.S.

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THE DE FORD INHALER

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GEORGE WOOD CLAPP, D.D.S., Editor

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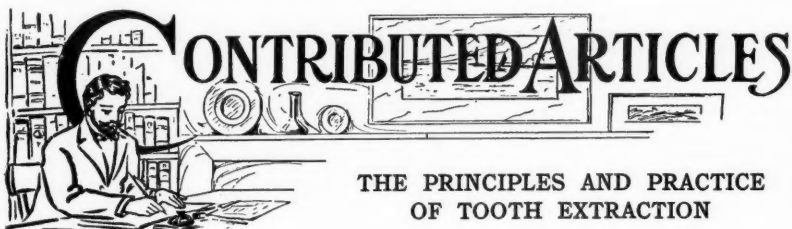
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THE PRINCIPLES AND PRACTICE OF TOOTH EXTRACTION

BY WILLIAM J. LEDERER, D.D.S., NEW YORK CITY

First Paper

THE principles of surgery are always the same, no matter to what part of the body they are applied. Different localities of the body vary in degree of susceptibility to infection. Thus the opening of the abdominal cavity or the exploration of the knee joint is attended by more apprehension than the incision of a superficial abscess or the extraction of a tooth; nevertheless, the latter procedures are surgical operations just as the former, and the same rules must be observed.

The late W. D. Miller, in his work on "The Microorganisms of the Human Mouth," collected a list of 165 cases of severe infections following dental and buccal lesions, of which more than sixty terminated fatally. Some succumbed to heart lesions, others developed pulmonary infections, others meningitis, cerebral abscesses, pyemia, septicemia, Ludwig's angina, frontal sinusitis, thrombosis, etc. Those who did not die carried off syphilitic infections, and those who finally got

well went through long suffering and a trying convalescence. These cases were reported by Kirk, Jack, Wilson, Darby, Truman, Marshall and others of like quality.

Von Mosetig-Moorhof, the eminent Viennese surgeon, reports two cases in which extraction of the second right and left lower molars respectively were attempted; the first case developed gangrene of the soft tissues, phlebitis, myelitis, œdema of the lungs, and died. The second patient contracted an osteitis followed by phlebitis and pyemia, and also terminated fatally. In both instances the broken-off roots had been extracted, drainage established by deep incisions, but it was too late.

Schwendt reports a case wherein the extraction of teeth was followed by infection of the orbits, resulting in blindness. Baume speaks of a case of an attempted extraction of a six-year molar followed by periostitis, necrosis, pyemia, pleuro-broncho-pneumonia, and death after two weeks.

Many a death certificate reads myocarditis, nephritis or pneumonia, the patient is laid at rest, and the fact that his death is the result of a tooth lesion is not known either to his physician or his dentist. The certificate really should read, "Septic endocarditis produced by streptococci which hailed from an alveolar abscess."

"How can such severe conditions result from a localized abscess? Pathology teaches us that when pyogenic organisms reach the walls of blood vessels they may set up a phlebitis (inflammation of a vein). The endothelial lining of the vessel is broken up, leucocytes collect at these points, and a mass is formed known as a 'white thrombus.'" This thrombus becomes infected with bacteria and is broken up, loosens, and thus becomes an embolism or a number of emboli. These masses are carried along in the blood stream and may produce metastatic abscesses or infect other structures; thus reaching the right heart, an endocarditis or a myocarditis may result; or the septic masses enter the pulmonary system and produce lung lesions, or they enter the general circulation by the left heart and infect other remote structures.

Such things being possible, dental and oral operations should be viewed in their true light, namely—as surgical operations, and be carried out accordingly; and the dental and buccal specialist, whether he calls himself dental surgeon, stomatologist, oral surgeon, or dentist, must accept and apply the principles of general surgery.

Surgery is defined as that branch of medicine dealing with disease requiring operative procedures; therefore, any operative procedure in the mouth is mouth surgery. In fact all operations in the mouth are surgical procedures, excepting the insertion of artificial teeth and the

introduction of appliances requisite for the correction of deformities of the teeth and jaws. The insertion of a filling is plastic dental surgery and calls for antiseptic precautions, a principle of surgery; the extraction of teeth is certainly a surgical operation and requires the observation of surgical principles.

STERILIZATION

The first principle of successful surgery is the creation and maintenance of asepsis as far as possible. A good deal has been written about sterilization and asepsis. However, the author finds that many men have not learned their lesson well, for he frequently notes a lack of understanding of the basal principles of asepsis among dentists. He has seen good operators sterilize a pair of forceps prior to extracting, and then, pausing to reëxamine the tooth to be removed, deliberately place the sterile instrument into their operating coat pocket, whence they had drawn a pencil or pad a few moments previously.

Some dry a sterile instrument on a previously used towel. In spite of knowing the meaning of asepsis and sepsis, they lack what Dr. Marshall calls "The sense of asepsis." An operator must not only know the meaning of the word asepsis, he must feel it; it must become part of his physical make-up. Surgical cleanliness spells absolute asepsis (as far as it is possible), as the result of any operation depends in a large measure upon the degree of asepsis under which it is executed.

Asepsis for the mouth specialist means aseptic hands, aseptic instruments, aseptic instrument table, aseptic field of operation. There are dentists who will sterilize their instruments but fail to properly cleanse their hands, and there are men who carefully observe personal cleanliness, boil their instruments, but fail to sterilize their impression cups. Many keep sterile instruments in filthy dental cabinets; by filthy cabinets I mean highly polished pieces of furniture with felt-lined drawers, full of dust, gold scrap, drugs, sand from polishing disks, in short, filthy drawers and compartments, which become the receptacles for sterile instruments. These instruments unavoidably become tainted.

In how many offices are instruments boiled before using? Dipping into carbolic acid before using is not practical, in fact all dipping is bad sterilization, unless tr. iodine is used, and this is hard upon instruments. All partial methods of sterilization are bad; they are a little better than no attempt, and they are unscientific and directly criminal toward the patient.

The new departure of instrument houses to construct dental furniture on the lines of surgical furniture is an innovation in the right direction. Dental and buccal operations must be viewed as surgical

procedures and carried out accordingly. The white-enamel office is unquestionably the dental office of the future; it must be kept clean, and the cleaner an operating room, the more aseptic. The following is the plan of sterilization pursued by the writer.

CARE OF THE OPERATOR'S HANDS

In surgical cases the hands and arms are brushed thoroughly with hot water and tr. of green soap. Particular attention is given to the nails, which are pared and cleansed with nail file and orange wood stick. The hands are then rinsed in sterile water, bathed in alcohol, and immersed for some time in a sublimate solution. If rubber gloves are worn, the hands are dried in a sterile towel and powdered with sterile talcum powder and the sterile gloves put on. If there are any cuts or abrasions upon the fingers, these are painted with a coat of collodion. In daily dental practice (ordinary cases) the thorough brushing of the hands and fingers with a good soap and hot water is sufficient. If an operator is treating a syphilitic patient and should injure the skin, the immediate and very thorough massage of the wound with 33 $\frac{1}{3}$ per cent. calomel ointment is a prophylactic measure against infection. The hands must always be very thoroughly dried before going out, to prevent chapping.

CARE OF INSTRUMENTS

All instruments are boiled in water to which a little washing soda has been added. After use they are brushed to remove blood, pus, tissue, and residue, and then boiled, dried in a sterile towel and placed in the cabinet. Knives after brushing are placed in lysol, washed in alcohol, and put away. Before using a knife, it is placed in lysol, washed in alcohol, but not dried. The author keeps a test tube half filled with lysol, wherein a knife is placed permanently, always ready for use.

Hypodermic syringes are filled with warm water and then boiled. Hypodermic needles are cleansed by attaching to syringe, passing water through, then detaching them, drawing a wire through the cannula and boiling.

Mirrors are brushed and boiled. It is better to increase the mirror bill than to run chances of imperfect sterilization. All instruments are handled with forceps and placed upon a sterile glass tray. After use they are placed upon a metal tray which is thrown into the sterilizer with the instruments. The assistant never touches an unused instrument with her hands. This method of sterilization is simple,

practical, and effective. It takes little time to acquire it, and then demands little effort.

Nerve broaches are passed through a piece of tightly stretched rubber dam, boiled, and rinsed in alcohol for drying. To save time, each instrument which is frequently used should exist in duplicate or triplicate form, such as scalers, chisels, and excavators. This means a little increased initial expense, but additional safety forever.

Drinking glasses should never be employed, but the always sterile paper cup be in use. Napkins and towels are changed for each patient and sterilized by washing, provided they are boiled in the laundry. The author had his chair covered with rubber cloth slips, the chair arms are of enamel; both are washed after a patient leaves the chair. The top of the swinging table should be interchangeable, so that it can be sterilized by washing and wiping it with alcohol after each treatment or operation. This apparent overuse of alcohol may seem expensive, but the writer does not use over \$10 worth of this drug throughout the year, which is hardly worth mentioning in return for the safety felt by both operator and patient.

THE RELATION OF THE OPERATOR TOWARD HIS PATIENT

Tooth extraction appears to be a simple procedure, demanding little skill. If the operator proceeds in this spirit he will soon learn that successful extracting is not merely "tooth pulling," but that considerable skill and judgment are required. It is impossible for any intelligent practitioner to adhere to any fixed set of rules, as every new case differs from its predecessor and patients vary in physical and mental make-up and teeth and jaws differ anatomically.

Before discussing the actual *modus operandi*, the writer desires to speak of a very important factor, namely, the attitude of operator toward his patient. The first essential for the operator is absolute calmness. Self-control and precision of action will inspire confidence. Never hurry; you cannot extract teeth successfully by the clock. The patient must always feel that the operator is the master of the situation. Sometimes the operator is confronted by a difficult problem and may be at loss which course to pursue; let him carefully weigh the several possibilities and then proceed. The operator must never exhibit stage fright or appear overwhelmed by the situation. A kind, gentle word, especially to women and children, will do more to quiet the patient than the pompous, ultra-professional air assumed by some. Kind but firm, never rough or impatient, should be the attitude of the operator. Men's successes can more often be traced to their attitude toward their patients than to exceptional skill or ability. In treating

children or extremely nervous patients some men have recourse to a falsehood, assuring them that this or that will not hurt, thus gaining their confidence, and then they perform some painful operation, as the extraction of a tooth or the removal of a pulp. This the writer absolutely condemns. Never tell a patient a lie. Do the least painful work first, gain the patient's confidence, and then he will submit even to necessarily painful operations.

150 East 74th Street.

(These papers will be continued in the July number.)

THE DIETARY FACTOR IN ORAL PATHOLOGY

By M. H. HALL, D.D.S., COVINGTON, KY.

THE time is not far distant, when the dentist who desires to do that which is best for his patient, cannot regard the oral cavity as an isolated area where the ravages of disease are repaired (on the hard tissues) and the patient dismissed, but he must, if he would be with the leaders, give vastly more attention to the prevention of diseased conditions.

As dental history informs us, the so-called pyorrhea, or evidences of it, have been found in Egyptian mummies, and carious conditions also obtained many centuries ago, so that we are, outside of operating and so far as prevention is concerned, about where some of the early dentists were.

In therapeutics we have used about everything in the U. S. Dispensatory for the loosening and exfoliation of the teeth and for caries, expecting antiseptics and alkaline mouth washes to prove effective. They have been more or less unsatisfactory, probably because, as some one has said, a disinfectant of sufficient strength to inhibit the growth of microörganisms could not be used in the mouth.

The application of preventive measures will eventually be looked for in a broader knowledge of the pathology of the alimentary tract. Nature, always economical, gave us teeth as an armament against disease to be used to the end of life, and not regarded as temporary, not as organs that will some day become hopelessly diseased and fall out, but as a precious asset which we must conserve by a better understanding of the antecedents which are the direct causes of gum and process diseases and the acids causing disintegration of the tooth structure.

This, in the writer's opinion, is the entering wedge wherein we must look for our place in the army of prevention, and jump right

into the void left unattended, that of guardian of the portal of entry of all nourishment.

This brings us to a consideration of what goes into the mouth that might cause pathological conditions, directly or indirectly.

Now, if pyorrhea is a local manifestation of a general derangement of the entire body, as some authorities claim, we must become pathologists really, and must understand subjects like dietetics, pathological and physiological chemistry, the chemistry of the foodstuffs, and have much more time devoted to the physiology of the alimentary canal. A superficial knowledge of these great subjects will not suffice.

All aliment is divided into two groups—inorganic and organic; inorganic being water and salts, and organic being carbonaceous and nitrogenous foods.

The extent and character of the metabolic processes of the body are dependent, in a large measure, upon the amount and character of the diet.

Now, what happens when an excess of the body needs of the carbonaceous foods are taken into the body? Ordinarily they are deposited in the form of fat in the parts least exercised. But what happens when the protein intake is excessive? (Professor Chittenden has proven, in his valuable experiments in Yale University, that the Voit standard of 118 grams of nitrogenous foodstuffs can safely be reduced to less than one half and the body yield a greater amount of mental and muscular energy, and his table of food consumed shows by comparison that the average individual consumes daily an amount of proteids far in excess of physiological needs.) These proteids, by their metabolic change, directly concern us because of the waste incident thereto, which must be eliminated through the excretory organs.

When we consider that the hard deposits of sanguinary calculi found on the roots of pyorrhea teeth contain urates from the blood, and when we know that these urates are in the blood from faulty metabolism, it is time the profession unfolds its hands and tackles oral disease from the bottom, not the middle.

If we do this we will no longer be considered tooth carpenters by the medical profession, but specialists to whom the physician must send his patient and whom the patient himself must seek for advice and repair in treating diseases of the alimentary canal.

This *must* be the ultimate result, because the diseases which are decreasing in frequency are those which depend for their propagation on foul air, infection, and unsanitary surroundings, while those that are increasing are caries and irregularities of the teeth, adenoids, appendicitis, neurasthenia associated with gastric insufficiency, infan-

tile diarrhea, indigestion, anemia, internal cancer in men, and insanity. Good men have shown these to be dependent on disorders of the digestive tract, and the dentist should be the adviser of what goes into this tract, as well as the repairer of the damage to the entrance.

Again, when the dentist knows the necessity of hard, fibrous food in the development and preservation of the jaws and teeth, and when we know that one pound of wheat contains 114 grains of material for the formation of teeth, bones, and muscle, and the miller removes 110 grains to make white flour, how can we ignore such things and claim we are professional men?

If you are going to make laws compelling dentists to take the M.D. degree, thereby keeping them in school five, six, or seven years, you will keep good men out of our ranks; where, if you add the science of diet to our college requirements as one of the fundamental studies, you will bring the profession to where it ought to be, in the front ranks of the healing arts, not at the tail end, where we are now.

In conclusion, what is diet and what is the science of dietetics?

Diet is a *system* of aliment. The science of dietetics is a "systematic presentation of food classification and food preparation, together with the principles which govern the choice of foods under various conditions, as age, employment, health, or sickness."

ANOTHER PLEA FOR ORAL HYGIENE WORK*

BY ELBERT STEWART, D.D.S., LITTLE ROCK, ARK.

I THINK that during the past year we have progressed a little. I believe that the members have gotten closer to one another and obtained more pleasure and benefit from the association than formerly. The Society has succeeded in getting the public to thinking of the importance of mouth cleanliness by the exhibits at the fairs. Our work in the schools cannot fail to be of benefit to the public health and will redound to the credit of this Society.

It has been intimated by outsiders that our Oral Hygiene work is merely a form of advertising, but I cannot see it in that way. Of course, if a person who is not now the patient of some dentist is induced to become one by reading any of our oral hygiene literature, it might very correctly be said that he never would have visited a dentist if he had not seen this literature. But is not this person benefited

* Read at the annual meeting of the Little Rock Dental Society, December 10, 1912.

more than the dentist whom he is influenced to patronize? Is the physician condemned because he preaches general hygiene, warns against tuberculosis, hook worm, etc.? He is called magnanimous and is said to be only charitably interested in the general health of the community, while the dentist is called mercenary and is accused of tooting his own horn and trying to butter his own bread.

But let us grant that it is a form of advertising. Isn't this just what dentistry needs? About the only kind of information the public has heretofore received has been given by the dental parlors, and this is notoriously misleading. Should not scientific dentistry (the kind that delivers the goods for the money and aids the patient to make a success of life) receive a little publicity? Has anyone ever objected to the publicity given to medical science? Oral Hygiene work is being carried on by the most ethical men in the profession.

Personally, I think the establishment of a code of ethics a mistake. It started the profession out wrong. A man's character cannot be changed simply by signing a code of ethics any more than by signing a letter. Has the code changed the character of the men subscribing to it, made better dentists or men of them? Has it eliminated the knocker or dental parlor, the two most unethical things in the profession, any more than the medical code has eliminated the medical quack?

This is the age of advertising—when a thing cannot be sold unless it is advertised, from a pin to the sermons of the preacher. It is advised in the Bible not to hide your light under a bushel, and that is just what dentistry has been doing for years. The dentist's work is hidden in the mouth. The patient has not sufficient knowledge of the art to tell good work from bad. When an artist produces an idea in oil or marble it is publicly displayed, but a good artificial denture, reproducing nature and serving to prolong the life of the user, is hidden from the world, and the pains, brains, and skill put into it by some dentist are never heard of unless that dentist has a plentiful supply of hot air. Indeed, this appears to be the best method for the dentist to use to advertise himself, as it is the one most generally used, and this contemptible method is not barred by the code.

Now I do not mean that I would like to see all dentists conduct their practices along dental-parlor lines. I don't believe in individual advertising; but what I do mean is simply this: The field of dentistry should be extended, that accurate information upon the care of the mouth should be given the public by organized dentists capable of giving such information. I consider the Oral Hygiene movement the biggest thing in dentistry, not excepting the recent awakening to the

business side of dentistry, which has been of so much benefit to the dentist himself.

I do not wish to be accused of selfishness as a motive for my interest in Oral Hygiene work; but even if this were my motive, is it a new one in the world? If you will show me one single unselfish cell of vegetable or animal protoplasm, even one single chemical atom not possessing the selfish instinct of self-preservation as evidenced by cell attraction and chemical affinity, I will show you how to overthrow all present ideas of life, all philosophy, religion, and science, and to construct a completely new and entirely different universe. Such a thing as absolute altruism never did and never will exist.

But I do not wish to defend myself for my interest in this work, but to arouse enthusiasm in others, for I assure you that the idea of being of some service in the general education for the health of your fellow man is full of attraction once you become interested. The public may be slow to take our advice upon hygiene, but its interest is sure to be aroused and its coöperation obtained by persistent efforts. It may be hard to establish the importance of mouth cleanliness in the minds of the people, because they are shy of all efforts to induce them to have a thing done which will necessitate some little pain. They have feared the pain of dental operations for ages, this bugbear of pain having received excellent gratuitous advertising since the first crude effort of some baboon to knock out its mate's aching tooth with a rock. The public may be educated, however, to believe that a proper care of the teeth is a means of avoiding all unnecessary pain, and that with the aid of the dentist to eliminate this factor, the unpleasantness of dental operations can be avoided.

I believe the time will come when railroads, factories, and other large employers of labor, the quality of whose product depends upon the efficiency of the labor employed, will require that such employees keep their mouths in a hygienic condition and will employ a dentist for this purpose, just as they now employ a physician to care for their general health. Insurance companies will demand of applicants an examination of the mouth by a dentist, as they now require a physical examination by a physician. In the education for efficiency the proper care of the teeth will be fully appreciated.

The cleanliness and proper functioning of the oral cavity with its organs, the teeth, will be considered—the teeth, the purpose of which is to prepare the food, the fuel for the inside chemical laboratory, where the sun's energy is liberated, the potential energy transformed into kinetic, the force, the power, the energy that governs the world, is the cause of all motion, makes bone, bone muscle, nerve, ideas,

thought, reason, art, poetry, and science; the energy that is one throughout nature, merely assuming different forms, the force that blows off the top of a volcano being the same that now moves my tongue.

To keep the mouth, the place wherein the first change in this great transformation of energy takes place, efficient, and to increase the chance of using every bit of this energy, will demand the service of one who will be considered the race's greatest benefactor, the dentist.
509 State Bank Building.

TREATMENT OF PAINFUL TEETH

(AFTER PARTIAL REMOVAL OF THE NERVE)

By EUGENE PAYNE, M.D., D.D.S., SAN FRANCISCO, CAL.

THE relief of pain in operations enters so largely into our success that we should provide everything available to meet it.

It sometimes happens that in pressure anesthesia for the removal of an exposed nerve, not all of the nerve filaments can be removed at one sitting, and if the attempt be made to remove it at the next visit, it becomes painful.

I usually apply carbolized resin over these inflamed nerve filaments and seal the cavity with calxine cement without pressure for ten days, then carefully remove this dressing, keeping the cavity dry, apply formacoid and tricesol without pressure and seal as before, and allow it to remain two or three weeks, until all soreness has disappeared.

The tooth may be slightly uncomfortable for a few hours after application of the formacoid, but five grains of antikamnia around the tooth or internally will relieve this. Also, you may use acetanilide caffeine tablets, five grains.

This treatment may seem trifling, but it is villainous to probe for a nerve fragment in the root of a tooth if you don't get it at the first sitting when the tooth is anesthetized.

To leave a remnant of nerve tissue in the tooth involves the danger of abscess, but if treated as above you will be enabled to remove it, and if a small portion cannot be reached by any possible means, it will be mummified and prevent an abscess in the future. This treatment applies to dead and abscessed teeth as well.

Every operation should be done as perfectly as possible, whether the fee is \$1 or \$100; the last limit of your skill and knowledge should be exercised. The poorer the patient the greater your obligation; the

amount of your remuneration should be last in your mind; get the result and the fees will come in proportion to your effort, and from a grateful patient.

Careless and indifferent work always scuttles the ship.

The most valuable advice I ever received was from my preceptor and at the time of my first operation; his instructions were: "Prepare the first molar and put in a filling; the price is \$3. Take all day if necessary, but do it right." Let me charge you with the spirit of his intent.

A needle-point stream of water through a hypo point sprayed on a tooth by an assistant while preparing a cavity with a stone or bur will render it painless in nearly every case if done properly; that is, a needle spray directly on the point of the instrument to keep it cool. The heating of the instrument, more than the actual cutting, is the cause of pain in cavity preparation.

In acutely inflamed dentine, novocain applied at the cervical margin under pressure or high up through the maxillary plate will anesthetize for full fifteen minutes, but I use this in extreme cases only.

THE SCIENTIFIC FOUNDATION FUND AND ORAL RESEARCH CAMPAIGN

By WESTON A. PRICE, D.D.S., CLEVELAND, OHIO

Chairman Scientific Foundation Fund

We should all help this movement by cash contributions for little sums or large ones. This work is most important. The manner of its doing is equally important. And if we are really professional men and entitled to hold up our heads as such, we should regard it as a privilege to help at least a little.

There is no dentist so "practical" that he can afford to neglect this. His "practical" knowledge was made possible only by somebody's previous theoretical knowledge.

If you're doing well in dentistry; if you have an annual cash surplus after all just accounts are settled, invest a little of it, even if it's only \$1.00 per year, in the general welfare of the profession.—EDITOR.

THE establishment of the Scientific Foundation Fund and Oral Research Campaign of the National Dental Association is being met by an almost landslide of professional support and endorsement. This is in part evidenced by the very liberal subscriptions made immediately upon the presentation of the plan. For example, when the work was

presented by request before the Cincinnati Dental Society on January 24th, every member present contributed, making a total exceeding \$2,500, or \$500 a year for five years; also when presented to a group of twenty dentists in Cleveland on January 28th, fifteen just ordinary dentists pledged \$2,000, or \$400 a year for five years. The full subscription from the society is not taken as yet.

The number and urgency of the invitations from other places desiring to have the plan and the work presented there indicates that the spirit of the profession is at this moment intense to provide, by means of a general coöperation, for the bread-and-butter problem of some competent men, that thereby they may enable them to devote their entire strength and undivided attention to the solving of some of the urgent oral and dental problems that humanity and the dental and medical professions are crying for a solution of.

Dr. Charles Mayo, in closing his splendid paper before the recent dental meeting in Chicago, January 31st, under the auspices of the Chicago Dental Society, made the statement that "it is evident that the next great step in medical progress in the line of preventive medicine should be made by the dentists. The question is, Will they do it?"

It is a remarkable fact that this oral group of diseases which afflict a larger percentage of humanity than any other, and which cause more total suffering directly and indirectly, should have probably the least provision made for its competent exhaustive investigation aside from the private effort and independent sacrifice of individuals who worked at night after a day of exhausting professional toil. Practically all of the great epoch-making advances in medical science have been the result of definite laboratory research, and were only made possible by money being made available and by a professional spirit back of it that was determined to know the unknown for the betterment of suffering humanity.

The eagerness to support this work financially, not as a mere sense of duty, but rather of privilege, scarcely exceeds the willingness of some of our best scientific institutions to place at the disposal of the national dental profession the free use of their laboratories and equipment in order that humanity may be the more speedily helped.

The committee has already had placed at its disposal, free of expense, facilities and equipment sufficient for a large staff of workers, and these with an environment of experienced experts for consultation which money alone could not procure. The committee also has found to be available some of the best qualified men in the various branches of oral and dental science, many of whom have an international reputation and whose hearts are known to the profession to

be deeply devoted to the solution of these various great basic problems. All that is needed to bring this large group of earnest, competent men and these proffered laboratories together is an equivalent of \$1 a year for five years from each member of the dental profession of the United States. Very many cannot be reached, others are too selfish to care, so that probably one fifth of the profession will have to carry the expense, which, however, will mean only \$5 a year for five years, and thus pay the dollar for the four others who cannot be reached. In the places named many are offering to take care of the twenty-four or forty-nine of the delinquents, besides their own \$1 part of the privilege.

A host of the profession have been longing and wishing for a way to do this seemingly imperative work for their profession and for humanity, but which they had not the time, the facilities, nor the money to do themselves. Now, by uniting our little but universal effort, we can, with a very few cents per year, provide for the maintenance of an expert investigator, including his competent assistants, all working in one of these fine, well-equipped laboratories, and any of these many basic problems can there be attacked for a few cents from each of us.

The committee has available already all requisites, *except the money*, for studying exhaustively the following problems: Dental Caries, its cause, prevention, and means for its immunity; Pyorrhea Alveolaris (so called) and all periodontal affections; Systemic and Distant infections having their origin in the mouth; Erosion, its etiology and prevention; Enamel Atrophy, its cause and prevention; the Metallurgical and Physical Problems, such as substitutes for platinum and iridio platinum; dental alloys and amalgam; the physics of bridge construction and orthodontia, etc. When this work is under way, it will naturally be reported quite regularly through the *National Dental Journal*.

The committee has implicit confidence that ample endowments can be secured during the five years to make the work permanent, extend and very much enlarge it.

The committee was created by the National Dental Association for organizing this new department and for the securing of the funds for its maintenance, and they expect to have a liberal fund available by the time of the National meeting in July at Kansas City, and will report for endorsement its progress and available facilities for proceeding with the work and will ask for a commission, to be selected by that body, who shall assist in the great responsibility of establishing the work. This work does not in any way conflict with the special

work being done by individuals at their own expense under the direction of another committee.

The funds are safely guarded by being deposited with a trust company, the chairman of the committee is under bond, and moneys can only be drawn over the endorsed voucher of the general secretary of the National. The committee has provided for a duplicate set of records of all payments to the fund to be kept by the general secretary of the National Association.

Every organized dental society, city, county, and state, should appoint a local committee on Scientific Foundation Fund and Research, with a local treasurer, who shall receive, receipt, and forward all subscriptions to the National chairman, who will also receipt for the funds as received. The subscription forms are designed for a card system of bookkeeping and furnishes the following—a subscription form with provisions for receipting yearly payments on the original, the National Chairman's receipt, the Local Treasurer's memo card for recording annual payments on pledges, a form to be sent to the National General Secretary for his duplicate record, the Local Treasurer's receipt and the Local Treasurer's remitting memo. The subscription forms will be furnished by the National Chairman on application, also printed matter carrying both endorsements and earnest pleas from some of the noblest men in the profession, also a brief statement of the purpose and plan of the work.

Will you help the dental profession establish this exhaustive oral research and thus have, as a profession, the credit for the work, the control of the work, and the consciousness of fulfilling in part our great obligation to society? If so, please send for subscription blanks and get busy at once.

10406 Euclid Avenue.

SOUTHERN DENTAL COLLEGE,
Atlanta, Ga.

Editor DENTAL DIGEST,

DEAR SIR:

I have in preparation a book in Oral Prophylaxis and Alveolar Pyorrhea. I am desirous of making a complete work of this and if any of your readers will kindly send me any new technique or treatment, I will certainly appreciate same, and if used will take pleasure in giving due credit for same.

ROBIN ADAIR.

ORTHODONTIA OF THE DECIDUOUS TEETH*

By E. A. BOGUE, M.D., D.D.S., NEW YORK CITY, N. Y.

Eighth Paper

INSTRUCTIONS FOR MAKING THE AINSWORTH APPLIANCE

THE third system, devised by Dr. Geo. C. Ainsworth, of Boston, was for correcting irregularities of teeth, and is described by him in the *International Dental Journal* for July, 1904, page 484, as follows:

"This appliance in its simplest form is composed of three numbers. (Fig. 1, A)—two anchors and a wire spring while the compound form has two springs. Each anchor is made up of three pieces—a piece of seamless tubing, with 30-gauge walls, of suitable size and length to be fitted to the tooth chosen for anchorage, after the manner of forming a band for a gold crown. To this is soldered, on the palatal side and at right angles with the band, a piece of 16-gauge wire running along the border of the arch, with a bearing on and of sufficient length to engage all of the teeth to be moved on that side; while on the buccal side of the anchor band is soldered a short piece of 16-gauge seamless tubing running parallel with the band, to receive the end of the spring wire—the active principle of the appliance.

"These anchors, when completed, are adjusted to the teeth selected, and cemented firmly into place. (Fig. 1, B)—one on either side of the arch, after which the two ends of the spring wire, bent at right angles to itself, are sprung into the tubes provided for them (Fig. 1, C).

"The inside bar is designed to move the bicusps and molars as a unit without the aid of ligatures."

This appliance can be modified in many ways very easily.

Dr. Ainsworth generally uses No. 30-gauge for adults; 32-gauge is thick enough for little children.

His lingual wires are 16-gauge for adults. I prefer gold and platinum clasp wire from 18 to 20 gauge for these little folks. If the anterior teeth need to be advanced still further, as they generally do, I use what Dr. Jackson denominates finger springs. These finger springs are made thus. Smooth the end of the gold and platinum lingual arch wire carefully: bend one inch of it around a segment of the circumference of a circle, whose radius is from 50 to 60/100 of an inch according to the measurements of the central incisors. Solder these finger springs to the lingual sides of the anchor bands, surrounding the last temporary molars.

* These papers were commenced in the October, 1912, number.

Previous to soldering, the straight part of the wire should be bent backward from the point where the curve ends, to the end of the wire, like the sample shown in the illustration on page 264.

If we are making an appliance for a little child, less than six years of age, I should proceed thus. Fit the upper and lower second temporary molars with bands either of German silver seamless tubing, 32-gauge or

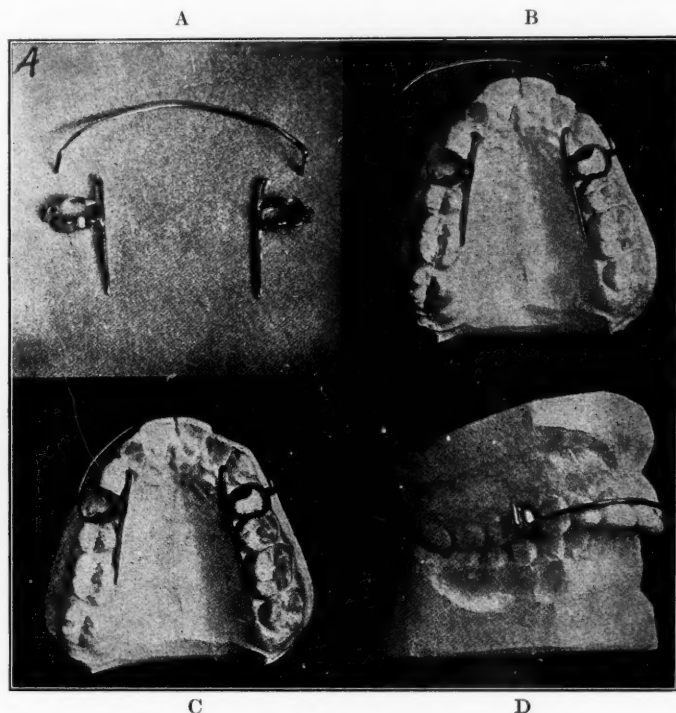


FIG. 1.—The Ainsworth Appliance for correcting irregularities.

of some metal equally thin, perhaps platinized gold. In making bands from strips of metal cut from larger pieces, be sure to smooth all the edges before bending the strip. After soldering the band, fit and shape it to the tooth or at least to the plaster model. Solder vertical tubes $\frac{1}{8}$ of an inch long to the buccal sides of the bands. This tubing should be 18 or 20-gauge caliber to fit the size of the wire to be used for the expansion arch.

If intermaxillary rubber bands are to be used, solder also, as far back as possible on the last accessible lower molar band, a little hook, like Dr. Jackson's clasp hooks, to carry this intermaxillary rubber. Then fit the bands to their places on the teeth, festooning them at the margins

of the gum. Do not allow any part of the appliance to touch the gum. When finger springs are to be made, place the bands well vaselined on their respective teeth; take plaster impression over them, varnish well and after lightly smearing them with wax, pour plaster into them as well as into the impression.

As soon as model is removed from impression and before bands are removed from models, make arches and fit carefully to the vertical tubes in which they are to go.

Make also narrow bands of equally thin material for the cuspid teeth above and below, and solder little wire spuds, projecting less than $\frac{1}{8}$ of an inch on the lingual sides of these bands and curved toward the gum; their object being to hold steadily the finger springs, which are designed to advance the cuspid and incisor teeth.

The bands should fit easily over the greatest tuberosity and should be slightly contoured to the form of the tooth. In making bands for teeth, they should fit accurately *after* they are contoured. Contouring diminishes their circumference.

Fit all these bands to their respective places and take impressions with the bands in place.

Only enough impression material should be put into the impression tray to just cover the full length of the teeth.

The bands are expected to come away with the impression. If they are in any way disturbed, press them back to their places in the impression at once.

If the impression is taken in plaster, the lines will be clean cut and there will be no uncertainty as to the bands going to their exact places.

Before pouring these impressions varnish with shellac and let it dry: then varnish with sandarac and let it dry. Then give a light coating of soap solution to ensure the model coming away easily.

Pour the six front teeth first and no more. Then pour the remainder of the models. When the models are removed, the six front teeth are expected to be separate from the rest of the model and you can saw these models in two from front to rear so as to spread them as you would wish to spread, in order to rearrange the natural teeth.

At the same time set up the six front teeth into the positions you would wish them to occupy when the operation is finished. (See description of Hawley arch, DENTAL DIGEST, February, 1913, p. 82.)

Fasten these two halves and the corrected six front teeth securely with plaster into their corrected positions. Fit arches to their bands and tubes before removing bands from plaster teeth cast in them. Bands can never go back with perfect accuracy once they are taken off the models. Then bend the expansion arches to fit the tubes on the molars

and to pass round in front of the incisors, just touching them without pressure. It is best to leave a loop or a double loop on each end of each arch wire. You now have an arch that will prevent too great spreading, while it can itself be spread a little further apart if desirable to obtain its full resiliency. Or it can be lengthened by straightening out the curves at the ends of the arch. At the same time the finger springs will advance the incisors, and should their pressure be a trifle too great, no harm can come of it, for the expansion arch will check too great an advance of the incisors.

The probabilities are, however, that the finger springs will need reinforcing in order to carry the incisors far enough.

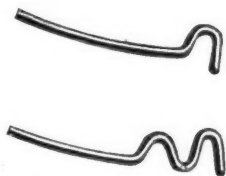


FIG. 2.—Loop ends of the Ainsworth Arch.

You can now fit the finger springs to the exact places in which they would securely hold these teeth if the spreading process were finished. Make all pressure in the line that you want the teeth to occupy when finished. Make finger springs, upper and lower, to correspond as far as possible with the perfect arches into which you are trying to draw the teeth.

It is sometimes necessary to vary from this rule, but the principle should constantly be borne in mind. Finger springs should press all the teeth they touch in the direction in which they ought to move.

Now drill a little plaster from the inside of each band, toward the lingual side, at the point where the long end of the finger spring, of No. 20 gold and platinum wire, would lie, when everything is accurately in place. This will allow the solder to melt more readily than if the plaster were close to the band.

Fasten those finger springs accurately with iron binding wire and protect them from the heat by covering them with a thin covering of plaster and sand, leaving exposed only the portion that is to be soldered. Then solder them securely to the lingual sides of the bands on the molars, using 14-karat solder.

After these finger springs are soldered, they should pass next the gum under the curved spur on the lingual sides of the cuspid teeth and should rest firmly against the plaster incisors which will now occupy

the places which the teeth should occupy after the moving operations shall have been finished.

To place these appliances in position, first get a little space, by wedging if necessary, on each side of every tooth that is to be banded. Have each tooth thoroughly clean and dry. Set the cuspid bands first with hydraulic cement, allowing the cement to harden for at least one day. At the next sitting, cement one of the lower molar bands, springing the finger spring so as to allow it to take its place under the spud on the cuspid. This finger spring should be firmly tied to one or two of the

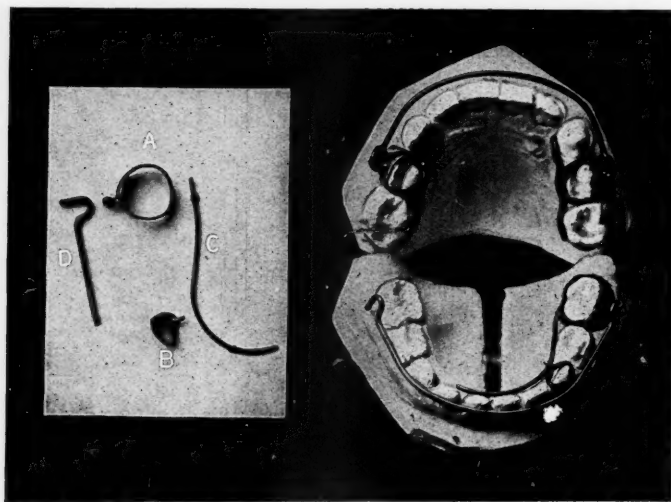


FIG. 3.—Ainsworth Arch as fitted to a child.

A, molar band with tube for arch; B, cuspid band with lingual spud; C, finger spring, bent as it should be to press in the right direction; D, end of arch wire fitted to tube on band A.

molar teeth against which it lies for at least twenty-four hours while the cement is hardening.

Then, another day, duplicate this operation for the other side of the mouth, again tying the finger spring back against the teeth on that side.

The same course should be followed with the upper row of teeth if finger springs have been used.

After the cement shall have fully hardened, say twenty-four hours, the wire expansion arches should be placed in the tubes that are attached to the anchor teeth. If the patient is not to be frequently seen, it is advisable to drill tiny holes from front to rear in each end of these ex-

pansion arch wires, with a 000 bur, in order that a fine wire or floss silk may be passed through and twisted or tied to prevent the arches from being accidentally displaced.

The silk is easier to the cheeks and lips than the wire, but it is a little more difficult to pass through the tiny holes in the ends of the arch wires.

It is best to see the little patients about once a week to guard against accidents.

But if the apparatus, made as indicated and carefully adjusted, is put at work and the teeth and fixtures are kept thoroughly clean, no harm will arise if the child should be absent several weeks; because neither the expansion arch nor the finger springs will go beyond the limit to which they have been adjusted.

Excepting the slight soreness, caused by wedging the teeth apart and the trouble of getting used to the appliances, that are put on in this gradual manner, there should be no pain from any part of the operation.

The most scrupulous cleanliness should be insisted on after every meal. A short tooth brush with one row of bristles is very useful in keeping clean the fixtures and teeth near to the appliances.

63 West Forty-eighth St.

(This article is expected to be continued in July number.)

DENTAL CLINIC AT NEW YORK HOSPITAL

ON March 28, 1912, a dental clinic was established at the New York Hospital for the benefit of the poor. I was appointed dental surgeon, and the clinic was furnished by one of the governors of the institution.

It was my purpose, at first, to attend the clinic Tuesday, Thursday and Saturday mornings, but owing to the large demand for services I was compelled to add Friday morning, 9.30 to 12 noon.

The year's work may be classified as follows: Treatments 575; oxyphosphate fillings 166; alloy fillings 245; gutta-percha 5; oral prophylaxis 52; extractions 589; oral surgery cases (including opening abscesses, removing necrosed bone, and fractures) 30; making a total of 1,652 operations.

As this might interest the profession kindly publish in your next publication.

NORMAN A. POST, JR., D.D.S.

THE GOLDEN OPPORTUNITY

THE dental profession is being canvassed to ascertain if the members will individually and collectively support the movement known as the National Mouth Hygiene Association.

Dr. W. G. Ebersole, of Cleveland, Ohio, has agreed to give up a large practice and devote all of his time to disseminating the gospel of mouth hygiene, providing he receives the support and co-operation of the profession and is properly compensated.

No man is better fitted for this work. He has the knowledge and experience, the personality and presence necessary for the successful carrying out of the work. He, more than any other one man, is responsible for the movement. The profession should seize the opportunity which is presented and assure Dr. Ebersole's acceptance as leader.

The aim of the National Mouth Hygiene Association is to get the knowledge which every member of the dental profession possesses before the public in the quickest and most efficient way, namely, by throwing the great white light of publicity upon it.

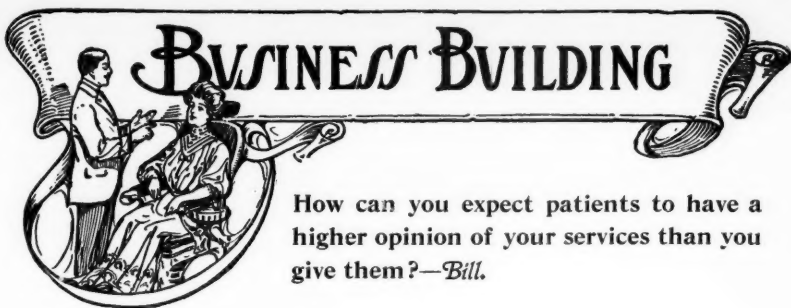
The spreading of such knowledge can be best done by an organization which is national in scope and which will co-operate with the local societies. Oral Hygiene means prevention. We know that most oral troubles are preventable and that were they prevented many of the ills which afflict humanity would be greatly lessened and some of them done away with. When the dental profession is known as one that can prevent diseases, it will occupy a higher plane and be regarded as a more noble one than is now the case.

There ought to be a generous response to the plea of the National Mouth Hygiene Association from dentists throughout the country, and in place of the five thousand charter members which they ask for, twice that number should apply.

The cause is progressive and one of the most worthy of our time. Let us heed the call and work together as a mighty force for the common good of humanity and the elevation of our chosen profession.

HOWARD P. BARBER, SPRINGFIELD, MASS.

It is the universal opinion of men of all ages that justice and right prevail, and from this comes a great fundamental principle or law, that of proportion. That as we give so shall we receive. In proportion to the service we render to our fellow so ought to be the remuneration. Ideals of service are as varied as the sands of the sea, but the ever-constant motto should be efficiency.—ROBT. A. CHATTIN, D.D.S., *Texas Dental Journal*.



How can you expect patients to have a higher opinion of your services than you give them?—*Bill*.

SERVICE SELLING TALKS

By W. F. DAVIS, D.M.D., NEW YORK CITY

NUMBER ELEVEN

"GOOD-MORNING, Sheriff. What have I done this time? Nothing serious, I hope. Do you know, when a man sees the Sheriff coming into his office or place of business, he immediately begins to run over in his mind whether he has done anything that would call for the Sheriff's visit, if it was found out. I can't think of anything this morning."

"Well, Doc, this visit ain't in an official capacity. If you've been doin' anything bad, you've got it across, so far as I know. I did hear you disturbin' the peace last Saturday afternoon at the ball game by hollerin' so blamed loud when Tommie Murphy made that home run. I reckon, however, there was 'extennatin' circumstances,' as the French say. I just dropped in to get a tooth out. It's botherin' me some, and Lord knows, with the strike over to the cotton mill, and fellows setting barns afire all around, I've botheration enough without any toothache."

"Sit up, Frank, and let's see what is the trouble. I've always noticed what splendid teeth you had. They are so regular and strong looking. They are somewhat discolored, showing that you don't take much care of them. I've often wondered if your back teeth were as fine as your front teeth looked to be."

"I reckon you'll be some disappointed. I never took any care of my teeth. Once I read in some paper that everybody ought to brush their teeth. So I bought a toothbrush and tried it. Say, it seemed pretty small business for a big fellow like me to be fussin' round with that little dinky toothbrush. I gave it up after a few times. Made me think of the time a city girl was visitin' at Lawyer Thompson's. She was an awfully pretty little pink and white thing, with fluffy yellow hair, and big baby-blue eyes, and when she used to say, 'Oh, you're such a g-r-r-a-n-d specimen of God's greatest work, a *real* man,' I used to swell all up and want to go out and fight a whole yardful of train robbers."

One time, she told me about some of those Knights of olden times, who used to go around playing guitars under their ladies' windows. So I bought a guitar and a book that told how to play it. You'd never think I was that big fool, would you? Well, I was. I went out to the horse barn Sunday morning and begun. I read some in the book and then tried to get music out of the guitar. I got some noise, but it didn't sound like music. I looked round at my big black horse, Jim, and I swear, Doc, he was laughin' at me, just as plain as a person could laugh. And no wonder. There I was, six feet and an inch in my stockings, 195 pounds in my shirt sleeves, with a hand as big as a ham, tryin' to tangle my fingers up amongst those guitar strings, just because a silly little girl fed me a lot of flattery. I made a few strong remarks about different kinds of fools, with a personal application to myself and smashed the guitar across my knee. I heard Jim, my horse, snicker right out when I did it. A regular horse laugh, you know. I've swore off on girls with fluffy golden yellow hair and baby-blue eyes. What I was getting at was, that I am not built on the correct plan for handling such frail little things as guitars and toothbrushes. My hands are too big and clumsy and I really don't see the need of botherin' with them.

"Say, I'm takin' up a lot of your time with my foolish talk. I'll be runnin' up a big bill, first thing I know, 'for time spent in consultation.' That's the way lawyers put it down in their bills."

"Never mind. It's a dull morning, and I never had a visit from a real live Sheriff before. Now about that aching tooth, which one is it? That big upper molar on the right side? Looks as though it might make trouble. What kind of an ache is it, steady or only when you get food in it? Only aches when something presses on it? Well, that's favorable, anyhow. You've never lost a tooth, have you? What did you think you would have done to this tooth?"

"Well, I didn't exactly know. I thought maybe you could put in something to kill the nerve, or stop the achin'. If you couldn't do that, why, I thought I'd have it pulled. Providin', of course, I could get up the courage."

"Why haven't you had something done to that tooth on the other side that has been sensitive so long, and that has prevented you from masticating with the teeth on that side for the last six months?"

"How do you know I haven't been eatin' on that side of my mouth? I'll admit that I haven't. One of the big teeth on that side got pretty tender and hurt when I chewed on it, so I used the other side. Now, both sides bother me. That's why I came in."

"Case of 'Between the Devil and the deep sea,' wasn't it? They call you 'Big Frank,' and say that you can thrash any man in the

country. So I am just taking my life in my hands when I tell you that I'd like to kick you round the block for neglecting your teeth as you have. I was complimenting you on the appearance of your front teeth, but your mouth is a regular 'whited sepulchre.' Nature gave you a magnificent set of teeth. Having provided you with these teeth she left the care of them to you and you have sadly neglected your duty."

"Is it as bad as that? Of course I knew I ought to have come before, but you know how a body neglects these little things. To tell the honest truth, I was afraid you would hurt me. Now that you have got me in your power, read your indictment and pass sentence."

"First, I am going to tell you the state of your teeth as I find them. Because of a tender tooth on the left side you have not chewed your food on that side. Unused tools rust. Unused teeth, unless carefully attended to, collect what we call tartar and become a foul-smelling, disease-breeding mass. That is what has happened in your mouth. You ought to be ashamed of yourself to allow any such condition to exist. You are a big, strong, healthy man. You have a good appetite, a good digestion, I judge, and you need a lot of food to keep that big body of yours a-going. All that food should be thoroughly masticated before it is swallowed. You cannot properly chew your food unless you have all your teeth in good working order. If you do not thoroughly masticate your food, it will not be fully digested, and you will not get the full benefit you should derive from it. Little by little, you will feel the effects of improper mastication and imperfect digestion. You wash your face, because it feels better and looks better when clean, so with your hands, your body. Every part of your body, except your teeth. Why do you neglect your teeth? Is it laziness, or carelessness, or because you do not realize the importance of mouth cleanliness? You do not use tobacco, you appear to be in perfect health, and your mouth should be clean and sweet. It's a mighty long ways from being either. You owe it to yourself and your friends to make it so. Now, what have you to say for yourself, 'guilty,' or 'not guilty'?"

"I reckon you've made a case against me, Doctor. There doesn't seem to be any flaw in the indictment. There seems to be only one thing for me to do; plead 'guilty,' throw myself on the mercy of the court, and ask for as light a sentence as possible. Make it a fine, instead of imprisonment. Joking aside, I can see that I have been very careless. What do you advise me to do, and what is to be my fine for 'neglect of duty'?"

"I'll tell you exactly what ought to be done. You ought never to lose a tooth. When a spoke comes out of a wagon wheel, you can go on using the wheel, just the same. But you don't. The wheel will run

along. The loss of one spoke doesn't absolutely disable it. But the loss does weaken the wheel, and you do not trust it. The loss of one tooth does not prevent you from eating, but it does weaken your masticating machine, and every subsequent lost tooth weakens it still more. So I don't like to have you lose even one of those nice, strong teeth. Your teeth need a thorough cleansing from all tartar and other matter that does not belong there. Possibly some treatment may be necessary. Quite a number of your back teeth need filling. I think the cost will be not less than \$25, nor more than \$50. I won't charge you any more than I would an ordinary person, without the Sheriff attachment. And right now, I want to tell you that there isn't much use in putting your teeth in good order unless you intend to take at least reasonably good care of them. How about that?"

"I mean to do just that, Doctor. I never had an idea teeth were of so much importance. I begin to see their value from your standpoint. When I came in I meant to have that aching tooth out, and perhaps have my teeth cleaned. That's all I meant to have done. Say, do you know John Brown, over Centreville way?"

"Oh, yes, I know John. He's one of my regular patients. Comes in every three or four months to have his teeth taken care of."

"Well, I was over at his place two or three days ago and was complaining of toothache. I told him I was going over to the old dentist at B—to have it out, because he was our family dentist. He persuaded me to come to you. He said you wouldn't pull the tooth, but would not only talk me into keeping it, but also into having all my teeth fixed. I told him you couldn't put any such line of talk across on me. But, by Jinks, you did, and you did it by a good, fair and square, sensible talk. I'm convinced, and I'll be in next Monday forenoon. Good day, Doctor, and much obliged.

"Good day, Sheriff. I'm glad you are converted. Oh, by the way, what became of the girl with the 'fluffy, golden yellow hair, and the baby-blue eyes'?"

"That girl married the little \$12 a week drug clerk down at the Corners. I see her in the store occasionally and, believe me, Doc, I consider that I had a mighty narrow escape."

(Service Selling Talk No. 12 is expected to be published in the July number.)

"THE DIGEST has done more for the dental profession in a financial way than all the other books of the day."—LAMONT.

SHOULD PHYSICIANS ADVERTISE?

BY GUSTAV ELSNER

At present there are two reasons why reputable physicians do not advertise.

They are forbidden to do so by the medical societies, which consider advertising as not ethical, at least in so far as it is self-laudatory. The trained ad man, it need hardly be added, knows the difference between self-praise and justified pride and self-respect. I heard of one case where an able and generally respected physician was made to resign from one of these societies because he said on his shingle, "Eye Specialist." This, of course, amounts to a *reductio ad absurdum*. But one cannot explain an idea, shared in by an entire profession almost without exception, by calling it ridiculous. On the other hand, it seems difficult for a business man—especially if he be *à priori* interested in advertising as the readers of this magazine are—to think of advertising as necessarily unethical. There was a time when this was truer than it is to-day, and it is still true that those doctors who do advertise are quacks or worse. But on the whole, this explanation, in common with many others, is a has-been and survives as a prejudice. For, as long as the results are the same, people do not bother to think that the causes may have changed.

This is wrong and a pity. The result is the same, but it might be different if causes that lead to it were removable. Psychological causes, like a prejudice, usually stop only when their effects stop. Truly, there is the cart before the horse. Thus it makes a great difference in what way a certain result is reached. For, if, instead of abstract ones, concrete reasons were found and recognized, these could be attacked and overcome.

The real factor preventing physicians from advertising is this: They cannot bear the expense, because, with their manner of doing business—a manner that has remained essentially the same since Æsculapius—they have no means whereby they could profit adequately by the increased demand which would follow a medical publicity campaign.

THE PRESENT OBSTACLES

A physician works practically by and for himself. Even if he is busy for ten to twelve hours a day (which is too much for quality work

in any profession), he cannot hope, except in isolated instances, to add to his income by adding to his shop. A merchant, finding that he alone cannot attend to all the details of his business, hires an office boy and a bookkeeper, and later on clerks and a manager. But a physician can only engage a nurse to clean his instruments, and sometimes an assistant. What would happen after advertising has increased the demand on his time and energy? His work and power of concentration would sink to a lower level, and even then he would be unable to supply the demand created by good advertising; and the reaction would be deadly—for the advertising, if not for the patients. As an alternative, he would have to charge higher and higher and still higher prices. If his services are such that they are invaluable for the preservation of lives, not much can be said against his raising his compensation. But if they are only of a good, average sort (and that means the vast majority) there is clearly a case where advertising alone would increase prices. Without going into this question now, the writer holds that such advertising is intrinsically unsound—the plus in cost would not be balanced by a corresponding plus in services rendered.

As a rule, not without exceptions, but as a rule nevertheless, advertising ought to cost less than the difference between producing the minimum and maximum, economically possible.

Then and therefore it makes for cheaper prices. Furthermore it *creates* business.

Granting that advertising is desirable, physicians must readjust their methods before they can start to advertise.

There are already two curious instances to point the way—one the wrong one and the other the better one. The first is represented by lawyer firms, the firms apparently rendering legal service. Really the firms do nothing of the sort; one member of it does. And in this country the legal profession has not yet seen the wisdom of limiting the fees for routine services (as in some European countries). If that were done, more men would go to the lawyers to have their affairs attended to in a proper manner, so that fewer court proceedings, but, rather, more work for the lawyers would result. Lawyers could then easily and successfully advertise because of the opportunity to create business.

The other instance refers to dentists who have established parlors where employees do the actual work under the name and responsibility of a firm. And, as was bound to follow such businesslike ways of organization, such dentist firms began to advertise. Unfortunately this advertising often imitated the patent medicine style—which again hurt the advertising.

PHYSICIANS AS FIRMS

There are no human machines that would not be better for a regular inspection. The field is as wide as humanity. Many such "machines" are now abused for want of repairs and used up for want of a timely overhauling. The inspectors are too expensive—not absolutely, but relatively.

Do you wonder at the terrifying prices a doctor charges you now, if you consider, for example, that he must have electrical apparatus which he needs perhaps but once a month, and then no more for half a year, until another patient turns up who requires that particular treatment? What a waste is there in needlessly duplicated equipment alone, not to mention that beautiful system whereby you have to pay first your physician for confirming your sly suspicion that you are sick, and then a consultant specialist for making you feel your good luck in having found him. However, as it is, it is equitable enough.

To advertise in the present state of affairs would be like advertising before distribution is effected. But the present state of affairs is as bad for those who cannot afford to pay for medical inspection as for the potential inspectors—who exist on an average income of less than a thousand dollars a year. The remedy lies in an organization of physician firms, started with a proper long distance view. If they are to live, they must be as honest and conscientious as individual physicians are now.

ORGANIZATION

Organization means, among other things, elimination of waste, and would permit lower charges for an increased service. It is not my mission nor intention to outline such an organization. But it will do, for argument's sake, to assume a "boss physician," who stands behind with his name and is responsible for the work done in his practice and under his general supervision.

And now advertising comes into its own.

Why shouldn't it establish a custom, even now in vogue in some families, of hiring a physician-inspector at so much a year to keep one well? (By the way, Chinese doctors are paid so long as their patients stay in good health.) There can be no doubt that in the long run prophylaxis would pay better than therapeutics. Prophylaxis lasts of itself; therapeutics at best—or worst—till the patient is dead.

Specialists under a supervision which prevents them from seeing in every "case" their specialty would be another advantage of a firm to deal with, and can be advertised. Naturally the better the specialist

the higher his salary and commission; and a good specialist employee will probably set up for himself, then as now. But he will proceed forthwith to engage employees of his own, and a sound businesslike competition, in addition to the more stable demand, will regulate prices.

And won't it be a merry war for a long suffering public if doctors advertise their services "including drugs"! The other day I bought some tooth powder at a drug store. "Do you make more than 500 per cent. on this?" I asked the clerk. "Hardly," he said; "it isn't one of our own brands."

SELLING SCIENCE AND SERVICE

Perhaps because all their energies were bent on being up to date in science, doctors neglected being up to date in selling it. Consequently people go to them only when *they* think it necessary—usually later than is good for them both. This, too, advertising will correct. The medical advertisers can utilize the experiments and experiences of the merchandise seller. Chiefly these: After the barter period (some physicians still exchange the bread they eat and the clothes they wear for medical treatment), there came money and stores. While this had advantages of personal attention and specializing, it was expensive on account of the awful waste. The reverse appeared in the centralizing department store. Now there is a tendency not to decentralization, as has been said, but to individualization within an organization. This eliminates most of the drawbacks and retains most of the advantages mentioned. Presumably there will be a further evolution. But here we are now, and it's a good time to start in with medical firms and medical advertising.

For the comparatively few who are able to pay there will always be a few able to supply that stimulating but exceptional demand for the most skilled physicians or surgeons, just as there are specialty shops next to department stores. They exercise a good influence on each other. And no sensible man will deny that the big stores filled a need, raised the average of good quality and benefited the majority. Clean, truthful advertising did half of it.

If a man possesses a commodity which is valuable because it is needed, and whose supply is limited, it becomes his profit as well as his duty to tell other people about it. Professional services are just such a commodity. They have, moreover, certain monopolistic qualities on account of an element of personality whose manifestations cannot exactly be duplicated. These will shine through the ads, and attract the right following to the right doctor, much quicker than the present

process of elimination, of wandering from office to office till you find a doctor whom your wife likes.

Incidentally, serious medical advertising will spread hygienic knowledge. And it will have a far more direct bearing on the welfare of future generations than tons of brain food or gallons of tonics. It will be a step toward that noblest goal of all science—not to make men well, nor clear up their errors, but to keep them from being ill and give them truth.

Medical advertising will be a step forward, and therefore some day will have to be done.—*Advertising and Selling.*

SOME OF THE BUSINESS PROBLEMS OF THE DENTAL PROFESSION *

By F. C. BRUSH, D.D.S., NEW YORK

DR. BRUSH (*answering question*).—The man principally; he didn't get down to brass tacks and figure out where he stood. He says, "I am taking that amount in," and he lives accordingly, but that doesn't represent income or salary to him. Out of that has got to come all the expenses of the business, and when he gets down to net it is pretty small.

Now, a man who has been engaged in a profession that takes as much out of him in the way of energy as ours does, a man who has been in practice eight or ten years and works a normal number of hours, if he can't earn \$5,000 net for himself, I don't think he is much of a success. I dare say that any one of you in the room that would go out and take a position that calls for the same expenditure of preliminary training and brains and vital energy you put forth in your practice would easily earn a salary of \$5,000, and that salary would be net. But when you do a practice of \$5,000 you haven't got a \$5,000 income. Your income at the best doesn't exceed \$2,500. Here and there a man may be able by careful business management and close economy to cut his expenses down somewhat, but, roughly speaking, it costs 50 per cent. of your gross income to do business. So that is one reason why I advocate living on a salary and putting that in your yearly statement of expenses. Figure out what you think you are worth to the business, to the public, and charge that salary and put it into your total of expenses.

* Abstract from an address delivered before the Toronto Dental Society, October 24, 1911.

You can't properly make a fee which is to represent the exchangeable value in return for your services and make it along the lines of successful business unless you know what the cost of the service is. Men say, how can you determine the cost of such an intangible thing as professional services? Well, it is hard unless you look at it from a broad standpoint. In the first place, you have got to determine what it costs you in the way of an investment to procure your education to fit you to render that service. You find that you must maintain an office suitable for the class of patients which you are catering to. Those are all added in, so that you find from this schedule of yearly expenses that it costs \$5,000 a year to conduct your practice. Allow yourself a salary of \$1,500, and say it costs in round numbers \$5,000 that you have got to receive—not only earn it, but you have got to receive it in order to pay all your bills promptly. Now, then, you figure out from the number of normal working days, cutting out Sundays. The reason why dentists have been practising on Sunday was for fear of losing a patient. There is no other excuse for it. Cut out those days, and a sufficient number of days for vacation, and divide the total number of days by the number of days you decide are a normal working year for you. That gives you the expense per day, and divide that by the number of hours. I don't think we should plan to be in our office over eight hours, and cut that down as much as we can. Now, by doing that you can reduce it down to the point where you know that it costs so much an hour to run your office. Now, when you come to perform an operation, if it takes you an hour and if you find it has cost you \$3 an hour to meet all expenses and pay yourself a suitable salary and a little more for profit, you can't afford to do the operation for \$1.50 or \$2. A dollar for an amalgam filling is considered pretty good, outside of the larger cities. It costs you more than that to render the service. How can you, as business men with families to support and with social position in the community to maintain, afford to do business at a loss? Fixed charges determine the minimum amount of the fee in your office and my office. Those fixed charges determine the minimum amount of the fee you can charge and do business at a profit.

The maximum fee is to be represented and is governed by the laws of supply and demand, just as it is in any other trade. If you, through your skill and ability or personality, can attract enough people to you so that your hours are engaged and there is demand all through the normal working hours which you have set aside for your profession, those hours are filled and engaged by patients, and still there is a demand for your time, then the law of supply and demand comes into

play and you are justified in raising your fees. That is the time to raise the fee to the individual. If you have been working on an average of \$3 an hour, get \$4 and get \$5. You say, "I will lose my patients." Of course you will. That is what you want to do. You want to lose patients. That is not orthodox teaching to you, because the older men down in the part where I come from have always said, "The way I attained my success was when patients came I kept every patient I had; do everything, sacrifice everything, but hold your patients." They succeeded that way; nothing ever got away from them. If the patient that came to them wouldn't pay \$5, they took \$2 or \$1, but it never got away from them. That, gentlemen, I say, is not ethical. It is not ethical, because they come before you and preach friendship, fraternity, brotherly love and good-will, and wish you success, and seek to get and keep everything that comes their way. Now, I say it is better for you to lose your patients and let the other fellow get some. That is more ethical. Let the younger men come along and have a chance. When your practice is full, when your working hours are full and there is demand for your time, the overflow should go to the other people. The usual way of increasing the income in dentistry is by increasing the working hours or by cutting corners on the operations. A young man builds up a reputation for doing good work. He has plenty of time, he takes time to perform his operation, and then he gets crowded a bit and he forgets something; it is not quite as good; he was hurried that day; and later on he gets into that slack habit, and some day the time may come when his best patients are drifting away to a younger man who still has time to attend to the patient. He is losing them. He might better take the time to perform those operations to the very best of his ability and then charge what the service is worth. If that method of operating has produced a demand for his services, then he is entitled, as that demand increases and continues, to increase his fees and thereby weed out some of his patients. You may lose by such a method. When I put it into execution I think I lost in the first year about 30 per cent. of my patients. I got cold feet, the same as any of you would. I was experimenting. I had to learn this thing to see how it worked out, but I found, by keeping close watch of my books, that at the end of the year, although I hadn't worked quite as hard, and instead of working overtime I had limited my working hours to a normal day, and while I found I had lost about 30 per cent. of my practice, my income for that year had increased over a thousand dollars. Supposing your fee is \$5 an hour and you need to earn \$25 a day, I think it is easier and better and the patient gets better value if you see five patients, working five hours,

than if you try to see ten or twelve. Five patients at \$5 an hour produces \$25. If you take ten patients or twelve patients and crowd those into the time, you know just as well as I do you can't give the same service; you are losing time. Every time a man says to me, "I am so busy I don't know which way to turn," I say, "How many patients did you see to-day, and I can tell you how much you earned?" knowing something of the man. He says, "What do you mean?" I say, "You didn't earn as much as you did yesterday, when you saw five." He says, "Why, I was rushed with the number of people I saw." Yes, but he necessarily lost part of the day; he lost time every time he changed a patient. If he changes his patient five times he loses fifty minutes. That is nearly an hour out of his day.

I think two chairs is a snare and a delusion. Until we find a way to grow an extra pair of hands, an extra pair of legs, and a body and brain to go with them, I don't see how one man can run two chairs at the same time. It is all right to say you have your business so systematized that the assistant gets the patient all' ly and seated in the next chair and you step from one and go right on with the other. I don't know how long you will be able to keep that up. I know I couldn't keep it up very long and do good work, and I don't think the patient feels as satisfied as when he gets individual attention.—*Dominion Dental Journal*

PERTAINING TO THE NEW PROPOSED INCOME TAX

THERE is no doubt but that the new proposed Income Tax will be a success in raising money for Government use; but will it succeed in equalizing taxation? Does an income tax remove the burden from the consumers and those who "have not" and place it upon those who "have"? This, of course, is the purpose of the tax, and I personally believe it is a noble purpose.

My studies abroad this winter lead me to doubt whether the proposed Income Tax will accomplish this desired result. Certainly the doctors, dentists and lawyers have increased their fees sufficiently to take care of this tax. The banks, likewise, have increased their rates of interest correspondingly. I therefore wonder if the ultimate consumer in Europe under the Income Tax System is not bearing the burden of taxation the same as under the high Protective Tariff System of the United States. Certainly this is a most practical, economic question and worthy of most careful investigation.—R. W. BABSON in *Barometer and Babson Composite Plot* for April 8, 1913.

EXPERIENCES

Editor DENTAL DIGEST:

IN the March number of THE DENTAL DIGEST appear three articles relating to reciprocity or rather the lack of reciprocity, between the different states, and the difficulty a dentist has of passing a state board dental examination, after being out of college a number of years.

It is nearly two years since I took this state's board examinations and to-day I could not pass the board without preparation.

But to prepare one's self for such examination is the simplest thing in the world. Buy a copy of one of these volumes containing a list of questions asked by the different boards throughout the country for a number of years past. A week's study of a few hours a day will put a fairly intelligent man in condition to pass any board in any state.

The senior year at college gives a student but little theoretical work and he grows very "rusty" on his theory of the first two years; at least I and the members of my class did. After graduating I took a short vacation, arranging my time so that I arrived at the city the board was to meet in, a week early. A week's study of a few hours a day on a volume of state board questions, and of a few text books, and I had supreme confidence in myself. I took the examinations with about fifty other applicants; was the first to finish and had a standing of eighty-seven plus.

I am a good operator but am no better than the average man in theory. If this experience of mine with the dental board will help a brother dentist about to face a board I hope you will publish it.

J. G. N.

Editor DENTAL DIGEST:

WITH regard to "Dr. K's" inquiry* and his solicitation for advice, and with all due courtesy to the editor of the DIGEST, I would reply "beware of the courts"; smooth out your fair patient's wrathful ruffles, and pour upon her feelings the most diplomatic stream of charity and good fellowship. Go ahead and remake her teeth for the third time; return to her the full "thirty bucks" and slip her "thirty more" to pay the other local dentist for having both sets again made, providing your next time is not thoroughly appreciated.

Swallow your professional pride; muffle your dignity; put far behind you the thought that "righteousness has its own reward," everywhere, every time. Now supposing you select to fight the case. A goodly retainer is your first expense. If \$25, or \$50, more or less, it means you're choosing an extravagant session. You ought to know that a

* March DIGEST, page 166.

woman is a mighty tough plaintiff, and once allow her to occupy the witness stand—well 'tis said "Hell hath no fury," etc. Once upon a time in extracting a child's tooth, I removed "a wrong one," and the right one, under gas. Upon another occasion a patient's brother termed me "a liar," and I banged him one, for luck. Peculiarly enough nothing came of these errors of commission, but in the years following several suits were aired against me, for which I had not the slightest concern, and I can tell you I woke up after the verdicts were given against me.

Consequently, do not hesitate to side-step any court martial. They are wicked institutions, and once you are made a victim, you lose courage forever. I reckon "*you lose if you win*"—Understand!

Now in closing, one more suggestion. It matters not the least whether you have any money or not. If a verdict is rendered against you it is *pay up or go to jail* and work the sentence out.

If you are utterly penniless, two weeks' sojourn in jail are the preliminary requirements should you adopt the "poor debtor's" channel. The fortnight recreation is created apparently as a sort of penance for being so poverty stricken, but the court claims it takes the two weeks to get papers filed and adjusted. Believe me, two weeks is some time under such circumstances.

The bankruptcy court, of course, is open too. That ordinarily costs from \$60 to \$80 to enter. But either the latter or the former are not select orders to affiliate with, especially for a professional chap. I hope you will not ill choose your weapons in this, your entanglement, and if the time were necessary, I might occupy far longer, citing illustrations to prove my idea that it is folly to carry a case to the courts. Good luck to you. Cordially,

M. L. F.

MY DEAR DR. CLAPP:

AFTER reading the article in the February DIGEST, page 89, "A Reply to Where do our Patients Come In?", I feel somewhat as you do. I am sorry that the subject was so presented and yet some one had to say what was said and say it in such a way that others must stand and take notice. There are many of us who appreciate the need for radical changes; many of us who feel that we are not receiving proper return for the expenditures of money, time and vitality that we are putting into our chosen work in this instance, dentistry.

To me there is nothing unexpected in the appearance of the article; it had to come out sooner or later like all other pent-up feelings, resulting from present-day industrial inequalities, and I see no probability of change for the better until public ideals are changed, and the world has aspirations above the acquisition of the dollar. We can't

all cater to the rich, nor do all of us wish to. The ideals of the day, though false, extravagant and fleeting, are nevertheless beyond attainment to those not possessed of pecuniary abundance. Automobiles, rich dresses, present-day necessities, that twenty years back were not thought of by people in moderate circumstances, are the order of the day to rich and poor alike; and the dollar hasn't half the purchasing power that it did then. I don't think that I am in favor of a "dental trust"; one more evil will not tend to better conditions but rather tend toward the reverse. Rather stand by right and fair methods. Our families will suffer of course; no good can be accomplished without self-denial. But, I question if in the end we will not be as well off as those who are now making "easy money."

Sincerely yours,

J. S. E.

Editor DENTAL DIGEST:

REGARDING the article which appeared in the March issue of the DENTAL DIGEST (page 168, and signed "Nebraska"), although the description was very indefinite, I would suggest taking a culture of the pus to a good pathologist and ascertaining the nature of the infection being dealt with; also a thorough blood examination is very essential.

The temperature should be carefully watched (taken every two hours and charted).

The patient's history should be gone into very carefully to ascertain the possibility of previous diseases which would have a bearing on the case in hand. Also the family history should be carefully considered.

With the above knowledge as a basis, one can follow a more specific line of treatment.

G. B. S.

A FORWARD MOVEMENT

THE Bullock County Medical Society having observed the great good accomplished by the medical and dental examination of the school children in Union Springs and desiring to extend equal benefits to the children of the county, has inaugurated a movement looking to the medical and dental examination of all school children in the county. The members of the medical and dental profession of the county offer their services for this work without charge. This movement cannot be commended too highly. The Society is to be congratulated on its progressive ideas.—Bulletin, Ala. State Board of Health.

(*Union Spring Herald.*)



PRACTICAL HINTS

[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to him.]*

USE TWO SPATULAS.—If you do not use two spatulas in waxing up a case, you do not know how much time you are wasting. Have one heating while you are using the other. Try it.—FRANK G. SWARTZ, D.D.S., CROSWELL, MICH., *The Dental Summary*.

TO TAKE PLASTER IMPRESSIONS.—In taking plaster impressions, first fill the tray, then with spatula or fingers carry plaster well up around ridges and into the high palate; or if partial lower, under tongue and into undercuts and depressions around teeth, excluding all air before inserting tray.—V. C. SMEDLEY, D.D.S., DENVER, COLO.

TO AVOID WEARING OUT THE HOLE IN THE WHEEL.—Take a cup-shaped stiff brush wheel which is worn out, and put on the lathe. After starting the lathe, hold a Bunsen flame against the bristles till well heated. This will soften the glue and allow bristle end of the wheel to be removed. The part left on lathe can be easily turned down with an old scraper and used to mount a felt-wheel on with hot shellac. This avoids wearing out the hole in the wheel and there is no mandrel sticking through to interfere when polishing.—H. M. STETSON, D.D.S., EAST WEYMOUTH, MASS.

A VALUABLE SUGGESTION.—It should be remembered that two or more contacts may often be tightened by the use of the separator and the building of one prominent contact. For example, if a case should present in which the contacts between the two bicuspids, between the second bicuspid and first molar, and between the first and second molars were slightly open, these might all be tightened by the placing of a mesio-occlusal filling in the first molar. It will not often be found necessary to cut a cavity in an undecayed tooth, as there will generally be a proximal filling in a neighboring tooth which may be modified.—ARTHUR D. BLACK, D.D.S., CHICAGO, ILL., *Western Dental Journal*.

METHOD OF HOLDING GOLD INLAYS WHILE DRESSING DOWN WITH FILE OR STONES.—Take a stick of Metalline, warm the end and work

*In order to make this department as live, entertaining and helpful as possible, questions and answers, as well as hints of a practical nature, are solicited.

it down to a point the size of the inlay. Heat the inlay and press it into the Metalline point while pliable. If the inlay does not hold, melt a little hard wax into the impression made by the inlay, then heat the inlay and press it into the wax and it will "stay put."

The Metalline stick is also handy for holding crowns in finishing and polishing. Soften the end of the Metalline stick in the flame, press the crown on. Pare off the edges that may crowd over the crown, and you have a satisfactory holder.—WM. H. SHULZE, D.D.S., ATCHISON, KANSAS.

TO ROUGHEN OR ETCH GOLD INLAYS.—Dip the part, to which the cement is to adhere, in mercury, being sure the surface is evenly coated, by using a moist piece of cotton and spreading the mercury around. When this has been accomplished, invert the inlay over an alcohol flame and slowly drive off the mercury, leaving a rough surface for cement to adhere.—RALSTON I. LEWIS, D.D.S., CHICAGO, ILL., *Dental Review*.

(Etching the cavity surface of an inlay in this way serves as an aid in fitting same where it rides upon a prominence; on pressing it into cavity, the point or points taking too much pressure will be burnished bright, and may be trimmed as required with sharp bur or stone.—V. C. SMEDLEY.)

PORCELAIN INLAY TECHNIQUE.—In the construction of porcelain inlays, burnish a matrix in the cavity thoroughly, then force melted sticky wax into the matrix, filling it up flush with the margins. Chill and with slightly warmed instrument attach to the wax and draw out the matrix entirely free from distortion.—E. T. TINKER, D.D.S., MINNEAPOLIS, MINN., *Texas Dental Journal*.

HEMORRHAGE AFTER EXTRACTION.—Another common trouble after extraction is that of hemorrhage, perhaps not so common as it formerly was, because of our careful treatment after operation. The recurrence of bleeding is not likely, once having been entirely stopped. In cases of persistent bleeding, however, the wound should be thoroughly cleaned with a curette and by irrigation, removing all blood clots and debris; then the bleeding point should be located if possible. Frequently it is some small blood vessel which has been wounded, but not entirely cut through, and by completely cutting it, its walls will contract in the usual way and the bleeding stop. In cases in which there is a persistent flow of blood, the source of which cannot be located, the wound should be tightly packed with a cotton plug, which plug must be held in place by means of an appliance if necessary. Firm and steady pressure properly applied will control the most obstinate case of bleeding.—JAMES F. HARBROUCK, D.D.S., M.D., NEW YORK, *Items of Interest*.

FOR AND AGAINST THE USE OF THE CARPET TACK

PACKING GUM BACK.*—In order to keep the gum tissue from falling over the end of the root after preparation, procure a small tack with a flat head, imbed it in warmed gutta-percha, shaped to a point; insert in root canal and press excess of gutta-percha around end of the root and forcibly against the gum tissue. Hold in position till it becomes cool. At next treatment the end of the root will be clear for action.—C. A. K., *Oral Health*.

To Editor of Practical Hints:

For your patient's sake, and your own reputation, *don't* try to stick gutta-percha on an anterior stump by using a "small tack" pressed into canal of root. No matter how many times this item is reprinted in dental magazines, *don't do it*, unless you court a malpractice suit when the patient swallows that tack.—JAMES A. CALLAWAY, D.D.S., MILWAUKEE, Wis.

(I have been using this suggestion (printed above) with great satisfaction since first brought to my notice. I remove the point of the tack, however, which in my judgment renders it harmless if the improbable should occur and the tack be swallowed.—V. C. SMEDLEY, D.D.S.)

DR. V. C. SMEDLEY:

IF properly used, Dr. Callaway need not fear injury from loosening of a carpet tack used to press the gum back when preparing a root for a crown. I gave that idea to the profession, as near as I recall, in the early 70's, after using it for some time with much satisfaction, and have since repeatedly demonstrated its preparation and use. During the many years I have been using it, I do not recall a single case where it became loose, or was lost. The directions given for its use in "The American System," Vol. II, page 796, are more explicit than those now and again given by later discoverers of its usefulness. Select a tack with a large head, file the stem so it will easily enter the root, making the sides of the stem parallel; if a very loose fit, as it will be if placed in a root with the dowel opening well reamed out, it is no disadvantage. Bend the stem so that the head will fit close to the root end. The stem should enter the root from three eighths of an inch to half an inch. Warm the tack and mould around it temporary gutta-percha stopping, using plenty; then warm it and press to place, packing the gutta-percha so as to fill the space if there be adjoining teeth, and to well cover the

* This Hint was given in the December, 1912, DIGEST, and was commented upon by Dr. James A. Callaway in the March number. We reprint the Hint and our remarks that the reader may understand the further correspondence.—EDITOR.

head of the tack. The tack is as securely held as will be a crown held by gutta-percha, with this difference—there is very little to dislodge it. I have found on the market no tacks suitable that do not require reducing the stem in size very much. Tacks with stems small enough are too short to be depended upon.—WILLIAM H. TRUMAN, GERMANTOWN, PA.

DR. V. C. SMEDLEY:

I HAVE noticed the item in the March DIGEST under Practical Hints in regard to using a tack to prevent gum tissue growing over roots; also the criticism thereof. I will say that I have used that idea for some years; perhaps half a dozen, and have never heard of any trouble. I use a brass-headed upholstery tack and cut off the end at a suitable length. After drying the root I varnish with a solution of rosin in chloroform, which causes the gutta-percha to stick. (I also use this for cavity lining.)

H. M. STETSON,

EAST WEYMOUTH, MASS.

DR. V. C. SMEDLEY:

I WISH to add my protest against the use of small tacks with gutta-percha for keeping back gum tissue from the end of a root after preparation. In place of the tack, I use a piece of soft pine that will closely fit the enlarged canal, and square-shaped above the end of root; it is then allowed to remain in chloroform for a short time; meanwhile, a piece of gutta-percha is formed about the size required. The stick is then pressed into the gutta-percha and passed up the canal; the gutta-percha may then be formed to the end of root. The stick will swell from the moisture of the saliva, thus holding the plug firmly.


I trust some tack user will see this, and mend his ways.

J. G. ALDCROFT, D.D.S.,

HUDSON, N. Y.

DR. V. C. SMEDLEY:

IN the March DIGEST I noticed Dr. Callaway's objection to using a tack to hold gutta-percha against an anterior root end. I used the tacks for a few years with good results; once in a while a patient returned with the gutta-percha loose and tissues not shoved back. Lately I have used small brass screws $\frac{1}{4}$ in. No. 0 and $\frac{3}{8}$ in. No. 0. Screw these up just a trifle into root, pack your gutta-percha or temporary stopping around it and when your patient returns it will be there and the tissues shoved away splendidly. I also use them for posts to build up roots for crowning.—SYDNEY W. BRADLEY, RICHMOND, ONT., CANADA.



DIGESTS

THE RELATIONSHIP OF THE THYROID GLAND TO DENTISTRY *

By H. EWAN WALLER, M.R.C.S.Eng., L.R.C.P.Lond.

The author of this article sets forth in a way that merits consideration, the facts that a proper amount of thyroid secretion is necessary to normal growth, both mental and physical. He believes also that a correct amount of thyroid secretion permits the saliva to carry enough calcium to neutralize any acids the saliva may contain, and in this way protect the teeth against the effects of salivary acids.

In the latter part of the article the author warns against indiscriminate administration of thyroid extract. The warning is timely. But you may have cases which you will desire to commend to the family physician, together with the information here given.

It will pay each of you to read this article carefully. It is not wise to be too busy to read important articles. And this is important.—EDITOR.

OUR subject is "The Relationship of the Thyroid Gland to Dentistry." My reason for choosing this subject is that in all probability the thyroid gland is one of the main factors both in the absorption and excretion of calcium. Calcium, in addition to being the most abundant constituent of the teeth, is also the principal base of the salts in the saliva, and a special study of the thyroid gland has impressed upon me the fact that where thyroid secretion is defective dental caries is usually rampant.

Obviously, then, we ought to inquire whether the thyroid gland is capable of influencing the teeth, and if so in what way? And if any such influence exists, which I hope to show *is* the case, it follows that you as dentists ought to interest yourselves in the thyroid gland, from the deficiencies of which, as I mean to convince you, your income largely flows.

I have spent a good deal of time investigating the tracks which lead from the thyroid gland to dental caries, and find the paths to be many and circuitous. There are many objects of interest on the way, and there are various by-paths which need further exploration. Let us, then, first of all get to our starting point and take a good look at the thyroid gland. It is an old saying that we seldom appreciate the true value of our possessions till deprived of them. I propose, there-

* Read before the Central Counties Branch at the Birmingham Dental Hospital on December 7, 1911.

fore, to deprive you, in imagination, of your thyroid glands. Forgive me this personal injury. I believe it will be for your good, and I want you to take a personal interest in the matter. If, then, you had been born with wholly inadequate thyroid glands, or suffered from serious thyroid atrophy in early life, you would have been seriously handicapped in the struggle for existence. In short, you would have been cretins. Your ultimate stature would probably not have exceeded four feet, and might easily have been less. Your intellects would have been dull, probably to the extent of making you entirely dependent on others for your living. You might have been absolutely imbecile, mere logs. But in such cases usually a medium state exists. The cretin is dull and roused with difficulty, but can be made to recognize external objects to a certain extent. He may even be capable of enjoying dainties, and I have seen such a one who habitually scraped his plate absolutely clean, and repeatedly tilted his glass upside down to be quite sure of securing the very last drops of such liquor as it might contain. But sensation is retarded, the gait and all other movements are slow and deliberate. The temper as a rule is placid, but may be varied by fits of passion and despondency. Some cases are spiteful and vicious. The habits are usually dirty, and even at the age of six or seven, the patient is often unable to feed himself. The face is broad and expressionless. The eyes are dull and situated far apart at the ends of a furrow running across the root of the nose. The nose is broad, with flattened extremity like that of a negro.

The lips, coarse, protruding and gaping, give a glimpse of a swollen tongue appearing between two rows of carious teeth. There is usually well-marked salivation. Please note these two points—we shall return to them later. The head hangs forward on the chest, the erector muscles being too weak to support its weight. In such cases spinal curvature may follow. The limbs are short, the legs bowed in a manner suggestive of rickety deformity, and there may be epiphysial enlargements. The skin is yellow and leathery, and is rough to the touch. The hair is scanty and stunted, the scalp dry and scurfy. There are often large lobulated fatty masses situated between the sterno-mastoids, above the clavicles, and in the armpits. They are not as a rule symmetrical. The temperature is subnormal and the patients are extremely sensitive to cold. Urine is usually passed in large quantity, and the blood usually presents a marked diminution in the quantity of hæmoglobin, the deficit amounting to 50 or even 60 per cent., giving the patient a very anæmic appearance.

These symptoms are largely amenable to treatment with thyroid gland substance, whereby we artificially supply that which was lacking

from Nature's storehouse. It is interesting to note that where treatment is begun before the period of second dentition, however badly decayed the first set may have been, the second set of teeth are large and strong.

Such is a description of the typical cretin, taken largely from that by Dr. Ord in Clifford Allbutt's "System of Medicine."

There are, of course, individual differences in different cretins, just as there are individual differences in carious teeth, but the difference is chiefly one of degree. Such, then, any of us might have been by inheritance or become as the result of any condition interfering with the function of our thyroid glands in early infancy. The cause of the condition when it occurs in this country is not always obvious. Cretins are not usually, if ever, capable of reproduction, so in that sense the condition is not hereditary. Yet cretinism may be the legacy bestowed by goitrous parents on their children, when they have any, and I believe that the influence of the mother in this direction is more potent than that of the father. But the majority of isolated cases, such as we are likely to meet with in this country, have been born to parents whose other children have been healthy.

I have had among my patients such a one, the eldest son of a family. His younger brothers and sisters were normal and one brother attained high rank in the army, and was recommended for the Victoria Cross. Another of my patients is the youngest daughter of her mother and the only survivor of the second family, the others having died of tuberculosis. The first family were all healthy. Yet another is the youngest son of a family of five, the others being all healthy.

Cretinism is not usually recognized in early infancy, and I am disposed to think that in many cases it is not wholly congenital, the determining factors of its production being, on the one hand, toxæmia produced by errors in feeding or hygiene or by disease, and on the other hand, perhaps, a thyroid subnormal in its capacity for dealing with toxins. In support of my contention I may mention that the mother of one of my cases says that her boy was all right till he had "consumption of the bowels," which was cured, she tells me, with Scott's Emulsion, but left the boy like this. He is a fairly typical cretin, though not quite of the most extreme type, and has abominable teeth. Another is reported to have had measles when three months old, and two subsequent attacks later. Now, I have ventured to take up your time with this description of cretinism, which in a sense concerns the doctor more than the dentist, because we know as a fact that cretinism depends on lack of thyroid function, and incidentally that cretins have extremely bad teeth. And when you consider the

appalling difference between this misshapen caricature of humanity and the real image, it surely becomes a self-evident fact that there must be hundreds of gradations between the cretin and the perfect man, and that many deviations from the ideal man may be due directly or indirectly to lack of thyroid secretion. As a matter of fact, we are now able to recognize many cases as belonging to this intermediate class, which forms a most interesting study, and gives the most delightful results as a reward for a little careful and patient thyroid medication.

There can be little doubt, I think, that some individuals start life with better thyroid glands than others. Or, possibly, the difference depends on infant feeding and on general health, as probably all illnesses, however slight, make demands upon the secretion of the thyroid gland, which is one of Nature's weapons for combating various toxins. Hence it becomes obvious that an illness like measles may produce a profound thyroid depression in the case of a child whose thyroid is either congenitally inadequate or has already been somewhat overtaxed by previous ill-health, or other unfavorable circumstances. Another more fortunate child possessed of an active thyroid gland may pass through the ordeal of measles without showing any very marked depression, though I believe that measles, of all childish complaints, is the commonest cause of thyroid inadequacy.

Further, we must recognize that thyroid inadequacy may be primary or secondary. Primary, as in cretinism and allied conditions, in which the gland has never been fully functional. And secondary, as in many cases that we can now recognize, where for some little time the thyroid has bravely responded to the overpowering demands of the organism, but has at length fallen exhausted. These are obviously cases for help rather than stimulation. And when we look at them we shall see ample evidence of past results, achieved by the thyroid while working at high pressure.

We shall probably find that the child is tall for his age, in marked contrast to the stunted growth of the cretin. We find him markedly thin, without a spare ounce of fat or any myxœdematous tissue, with a freely acting skin, a rapid pulse and a highly strung nervous system, all symptoms characteristic of excessive thyroid action, of which Graves's disease is the type, rather than of cretinism. On the other hand, he will resemble the cretin in his subnormal temperature and hypersensitiveness to cold, his anemia and constipation, and his lack of healthy appetite. And if the condition continue, further resemblance may arise. The point of interest that specially concerns you is that most of these cases suffer from excessive dental caries. So far as my

experience goes, dental caries is invariably present to a marked degree in all cases of long-standing thyroid deficiency, and in view of various observations, I am compelled to regard the former as at least an indirect cause of the latter. But it is evident, when we consider the cretins, that the thyroid gland has a governing influence over practically all parts and functions of the body. In its absence we see nearly every part affected, though, curiously, in one individual one group of symptoms will predominate, and in another a different group. Permit me to show you the reason of this by an illustration. Consider, if you will, that the thyroid secretion is the mortar with which the house must be built. Suppose that we have an adequate supply of all other material, but limit the builder to a small supply of mortar. He may get over the difficulty by building a smaller house than was intended, as it were a dwarf or cretin house. Or he may use an adequate amount of mortar over the early part of the building and then start to economize. Manifestly the final result will depend on where economy proved too rigid. The chimney pots may tumble down, one wing may fall, the porch may collapse, or the foundations crumble. The picture is different in each case, yet the primary cause is the same, a mere deficiency of mortar. So with the thyroid secretion and the human frame.

But the fashioning of the human body is more complex than the building of a house. We might suppose, further, that the house is being built in an enemy's country, that it takes twenty-five years to complete, and that the builders, though protected in various ways, are constantly being harassed by foes whose chief object is to steal mortar for their own purposes. This represents what happens to the human frame when assailed by the hostile forces of measles, tuberculosis or other disease. The thyroid secretion is stolen (being used up in some way to counteract toxins) and the organism is built for the time being without it; or, if the work be stopped, valuable time is lost, perhaps forever. If regained at all it may be at the expense of hurry in other departments, and hurry seldom spells efficiency. The ultimate result, then, depends on what the builder happened to be doing when his mortar was stolen, and to what extent he was able to remedy the defect when his supply of mortar was replenished.

Your special department, the teeth, of course belong to a very early period in the building of the human structure, dating from the seventeenth week of uterine life, so that any influence which adversely affects their calcification must be brought to bear either before birth or very soon after. Nevertheless we see caries rampant among the deciduous teeth of many children who are thyroid deficient. The same line of argument, of course, applies to the so-called permanent

teeth, which unfortunately show a sad lack of permanence in the presence of thyroid deficiency. But in the case of the permanent teeth there is a much longer period during which development may be adversely influenced by ill-health in general and thyroid inadequacy in particular.

Now, in recent years it has been discovered that a vast number of conditions are curable, or capable of great improvement, by thyroid treatment, and therefore we may fairly say that such conditions are due, though perhaps indirectly, to thyroid deficiency. Articles are constantly appearing in the medical journals on the value of thyroid treatment, now in this condition, now in that. To quote at random a few recent examples: thyroid has arrested the vomiting of pregnancy, has rapidly cured interstitial keratitis, has greatly relieved rheumatoid arthritis, caused atrophy of enlarged tonsils and adenoids, proved itself a remedy for rickets, has saved children from wetting the bed, and even in some cases has proved itself a cure for cancer. One could probably find fifty more conditions in which thyroid has proved useful, but the few I have mentioned will serve our purpose. What they prove is that the thyroid is a governing factor in nearly all the functions of the body, and conversely that the thyroid gland may very readily become overworked and exhausted under the most various and different conditions of ill-health. This fact is of importance to you because thyroid deficiency, whether primary or secondary, commonly spells dental caries. We have already noted the bad teeth of cretins. With cretinism we may couple rickets. The two conditions are undoubtedly akin, and if not generally accepted now, I believe it will be accepted in the future that lack of thyroid secretion is an essential factor in the causation of rickets. Rickets, as you are well aware, is almost on a par with cretinism for exhibiting the worst cases of defective teeth.

One of the reasons that the teeth are bad in cretinism and in rickets is that thyroid secretion is in some way an essential factor in utilizing the lime salts in the body. I will not go so far as to say there is an actual calcium deficiency, for it has been found that the urine of rickety people contains more than the normal percentage of calcium. And you may feed a child who has rickets with lime salts, but it does him no good because he cannot absorb them; but give him thyroid as well, and an improvement quickly follows. The same argument applies to other conditions due to lack of lime salts in the blood, notably urticaria and chilblains. In treating both these conditions I have had much better results by giving thyroid with calcium lactate than by giving calcium lactate only. I have even succeeded with thyroid alone.

the reason being that there is seldom an actual deficiency of lime salts in the ordinary food. What is lacking is the power to absorb them, which is provided by the thyroid secretion. It is perfectly obvious that under such conditions the development of uncalcified teeth, either temporary or permanent, must suffer, and you are all familiar with the delayed dentition in rickets, which is indeed so common that it is regarded as a diagnostic symptom. We need not, then, dwell any longer on the obvious fact that thyroid deficiency by preventing calcium metabolism will arrest and interfere with the actual growth of the teeth.

Indirectly, there is another way in which thyroid deficiency influences the welfare of the teeth, and that is by the production of narrow palatine arches, and consequently of irregular and crowded teeth, which are commonly said to predispose to caries. The mandibular arch is in many cases contracted as well as the palatine arch, and this fact alone ought to draw attention to the causation of the defect. The cause must obviously be something which affects the lower jaw as well as the upper. The simplest, and, as I think, the correct, explanation is that the arches become narrow because they are weak, the bones being unduly soft, because insufficiently calcified, and therefore not able to bear the strain which can be borne by a more sturdy arch. The upper arch yields the most, and also more frequently than the mandibular arch, which anatomically is much stronger and thicker. It is merely a question of resistance to the muscular force.

But first as to the power of these facial muscles. If you put your finger in your mouth with the palmar surface in contact with the external aspect of the teeth you may learn two things. Firstly, that the cheek muscles are surprisingly powerful, far more so than the extensors of your index finger, which you cannot move from its contact with the teeth except by relaxation of the facial muscles. Secondly, the cheek muscles would appear to exert their greatest force opposite the second bicuspid and first molar, which corresponds with the position in which contraction of the dental arch is most noticeable. And the reason the bones yield in some individuals and not in others who are subjected to the same strain is that in the former class the bones are unduly soft or deficient in lime salts.

This deficiency of lime salts is tantamount to an accusation of rickets, and you may very well ask by what authority are these children who have narrow dental arches to be accused of having rickets when they often appear to be very healthy? My answer is that in a great many cases you will find corroborative evidence in the chest, and

even when no such evidence is forthcoming it is merely a question of degree. The palate bone is one of the thinnest sheets of bone in the body, the only thin sheet which has to bear any muscular stress, and therefore any weakness of the bones due to calcium deficiency would be revealed here sooner than elsewhere. Further, between the ages of five and fifteen, when contracted arches arise, there is a tremendous drain on the lime salts of the blood owing to the rapid growth of bone, not to mention the development and eruption of the permanent teeth, so one could hardly wonder if at times the palate bone has to go a bit short, especially when, owing to thyroid defects, calcium assimilation is unsatisfactory.

Nevertheless, as you are aware, many cases of high palate (though not all) are accompanied by enlarged tonsils and adenoids. And to Dr. Leonard Williams belongs the credit of recognizing that enlarged tonsils and adenoids are a symptom of thyroid inadequacy. He first put forth his views tentatively in 1909 in a paper entitled, "Adenoids, Nocturnal Enuresis and the Thyroid Gland," published in the *Lancet* of May 1, 1909, and in October of the same year he published a paper entitled, "Thyroid Inadequacy," which I was lucky enough to read at the time. I immediately began to put into practice Dr. Leonard Williams's theories, which attracted me very much, and very soon found them to be perfectly correct. I found that administration of thyroid to children who were mouth-breathers, owing to slight degrees of nasal obstruction from tonsils and adenoids, very speedily improved their respiration, and after a few weeks of such treatment they slept quietly, with free nasal respiration and a closed mouth. I could name to you several such patients who would otherwise almost certainly have been submitted to operation. One of these, again, threatened to become a mouth-breather rather more than a year later, and the same line of treatment was again successful. Another patient, a boy aged eleven, was the victim of enuresis. He had enlarged tonsils but not such as to prevent him from breathing comfortably through his nose. I put him under thyroid treatment for his enuresis and was not immediately successful, as he required rather a larger dose than usual, and I had to work up to this gradually before obtaining a favorable result. But after a week or two he came to me and volunteered the statement that his throat was much clearer, and inspection revealed the fact that his tonsils were undoubtedly smaller. In the light, then, of the evidence available, I think we may accept it as a definite fact that enlarged tonsils and adenoids are a not wholly unsuccessful attempt on the part of Nature to provide a substitute for something which is

lacking from the internal economy, that something being normally provided for by the secretion of the thyroid gland.

My mind was full of these ideas when in July, 1910, our colleague, Mr. Rollinson Whitaker, asked me to give an anæsthetic to a child who was to be circumcised and also to have his tonsils and adenoids removed. It struck me that the case was a typical one of thyroid inadequacy, and as he responded extremely well to treatment, I will ask your attention to the details of the case, inasmuch as he might readily have fallen first into your hands on account of his teeth, which were all carious except five temporary incisors and one canine. One incisor was missing which I have reckoned among the carious teeth. His case is an illustration of dental caries associated with, and, as I think, dependent on, thyroid depression even after the eruption of the teeth.

It must be a familiar sight with most of you to see a child the whole of whose temporary teeth have decayed very rapidly after a succession of infantile complaints which have occurred at short intervals. The plea is often made that "the child has had so much medicine lately that it has made his teeth decay." But the immense benefit which follows the administration of thyroid gland to such a case makes it extremely probable that the excessive dental caries, no less than the other symptoms, is part and parcel of the general thyroid deficiency. Take this case as an example. His age was six years and two months. His mother furnished the following history: At birth he was an average-sized baby, and was breast-fed till nine months old. His body was always rather small. She had no trouble in feeding him, nor yet when he was teething. Medical aid was first sought when he was aged three, on account of "a feverish attack with a cold." But on the whole she was satisfied with his progress till eighteen months previously. Then he always seemed tired. He had measles, chicken-pox and whooping-cough within twelve months. Whooping-cough was attended with much sickness. His troubles culminated in a fit, which lasted about three minutes, on July 7, and was followed by unconsciousness lasting an hour. He had headache all the next day. He was very pale, and had been so for some months. His bowels were regular, but liquorice powder was administered once a week. His appetite was usually bad. He was constantly thirsty but did not suffer from enuresis. He was very sensitive to cold and his feet were always cold. He had been getting steadily thinner for six months, and his teeth had decayed rapidly during the last year. He was flat chested with slightly beaded ribs, had some enlarged cervical glands, not of great size, and a high-arched palate. I found nothing wrong with heart or lungs. His pulse rate was rapid, usually over 100, and his weight thirty-five and three-

quarter pounds, that is, about ten pounds below the normal for his age. Observing that he was not a good subject for an anæsthetic, in order to minimize risk my colleague tilted up the table and did the little operation with the child in the inverted position. I am very grateful, because, as it turned out, this precaution probably saved me from increasing the list of anæsthetic deaths usually referred to the *status lymphaticus*. When all was finished, I persuaded my colleague to let me take the case in hand for thyroid treatment, and he kindly used his influence with the relatives to this end, and handed over the patient to me. I began with half a grain of thyroid twice a day at first, three times a day afterwards. At the end of a week, the mother said, "You would be surprised how he eats now." His weight had gone up two and a quarter pounds, though the bowels were rather relaxed. He continued to improve almost without interruption, and in five months had gained over seven pounds. A normal child takes sixteen months to gain seven pounds at this age, an increase which this boy, aided by thyroid, accomplished in less than one-third of that time, though formerly he had not been able to keep up to the normal. I saw him again a few months later and he had gained another two pounds, and was still going on well. He had also cut three teeth, two lower incisors and a first molar. The action of the thyroid was assisted at times with calcium lactophosphate or an albuminous preparation of iron as an alternative. Potassium bromide was also given occasionally, as the child was subject to night terrors and used to grind his teeth when asleep. In four and a half months the boy was so well that all medicinal treatment was left off. At the same time it is likely that he would benefit further by occasional thyroid treatment up to the age of puberty. After this period the lack of thyroid is less likely to command attention in the male than in the female. This leads us into a subject which we have not now time to discuss, but the inference is that the internal secretion of the testis in some way assists that of the thyroid, either by provoking a healthy stimulation of the latter gland or relieving its labors by accomplishing kindred objects. The ovarian secretion appears to be less helpful than that of the testis, as we infer from the greater prevalence of thyroid inadequacy and goitre in women. Goitre, of course, is Nature's response to the cry of the body for thyroid secretion. If the supply be deficient the factory must be enlarged, but even this is not always successful, possibly from lack of raw material in the shape of iodine (and as a general rule the presence of a goitre indicates that there has been a considerable period of thyroid deficiency which Nature has done her best to remedy), it follows that in a case of goitre thyroid secretion has been previously deficient, but

at the moment may be adequate or even excessive. I think most cases of goitre show considerable dental caries.

But we must return to the children. The case I have quoted is but one of many.

This patient I treated in the light of experience gained from a similar case that I found at this hospital, whose history I have already published elsewhere. And I have treated numerous examples since with equal success. In case you may feel disposed to attribute this remarkable improvement to the removal of tonsils and adenoids rather than to thyroid medication, I will briefly refer to a series of half a dozen of my other cases similarly treated, in whom no such factor was present. The increase in weight of these six children under thyroid treatment for periods varying from a fortnight to six months, was in three cases more than twice the normal for the period in question, and in the other three cases, respectively six times, twelve times, and sixteen times the normal increase. Obviously, what these children were asking for was thyroid. As to their teeth. Five of them had marked dental caries, but I have no note as to the condition of the teeth in the sixth case of the series. They may have been carious or not. None of these six cases were either selected from the dental hospital or sent to me by dentists, so the selection is not in any way artificial. But please observe that most of these thyroid deficient are likely to come under your care. It is also extremely likely that their ill-health may be attributed to the amount of medicine which has usually been administered. For in spite of much medicine they do not get on, and unless the doctor is conversant with thyroid matters, they are most unsatisfactory patients. They are very sensitive to cold and tire quickly, which renders futile the usual prescription of "fresh air and exercise." The effect of thyroid medication, however, is usually dramatic, at any rate, so far as general health is concerned. Appetite and energy quickly return, but, naturally, carious teeth will not grow sound, and I should not expect contracted arches to widen without your manipulation. As to these latter, the administration of thyroid will cause increased calcification, and if growth be not yet complete, there will perhaps be a tendency for further growth to take place in a normal direction. But, believer as I am in the power of thyroid, I would not recommend you to expect such a result. Many of these patients get well in due course when the thyroid has recovered itself, and the credit falls to the most recent change of air, the latest patent food or medicine, or even the fact that the child has reached some particular age at which a change has been expected.

The degree of dental caries will depend on how long the period of

thyroid deficiency has lasted, and also, of course, upon the stage of dentition at the time when this cause was operative. This consideration brings us to the final problem. How can thyroid deficiency be a cause of dental caries after the teeth are fully calcified and developed? The answer is that in cases of thyroid deficiency the saliva is frequently deprived of its normal power of protecting the teeth, and possibly becomes actively injurious. I confess that when I began to write this paper I was inclined to blame the thyroid gland for the deficiencies of the salivary glands, inasmuch as I had noted that the salivary defects could be made to disappear under the influence of thyroid treatment. But it occurred to me a few days ago that possibly the thyroid and salivary glands are fellow sufferers, both depressed by the failure of some other bodily function, or by some circumstance that exercises an unfavorable influence on the general health. It now seems to me extremely probable that the thyroid gland and the salivary glands work largely in harmony and in response to a common stimulus, though it is also likely that they are interdependent. There are not a few arguments which will support this theory. Firstly, there is the thyroglossal duct, which shows that the thyroid gland at one time poured its secretion straight into the mouth, where it would mix with the saliva, and under such conditions one would naturally expect the salivary and thyroid glands to work in harmony. I have already mentioned that salivation is a usual feature of cretinism. I will now add that in three of my own cases, other than cretins, salivation, which had previously been a most troublesome feature, was the first symptom to improve under thyroid medication. On the other hand, I have also noted excessive thirst as a fairly common symptom in thyroid deficiency, and thirst is very commonly associated with a dry mouth. In the North "dry" and thirsty are synonymous terms. The sensation of thirst may be due to diminished secretion or increased viscosity of the saliva. The viscosity is due to the presence of mucin, and we know that the thyroid gland in some way controls the metabolism of mucin with which we see the tissues clogged in myxœdema. A minor degree of myxœdema, commonly mistaken for fat, is present in the tissues of many persons suffering from thyroid inactivity, but I do not know whether the mucin is correspondingly deficient from the saliva, or excessive there as well as in the tissues. I will briefly allude to one more point of association between the thyroid and salivary glands, and that point is one of the most curious problems in medicine, namely, the occurrence of orchitis, or of inflammation of the ovary in mumps, and conversely of parotitis with inflammation of the testis. The association of the sexual glands with thyroid enlargements has long been

known. As, then, the thyroid gland and the parotid gland are either of them liable to be affected by the vagaries of the sexual glands, is it not reasonable to suppose that other conditions of ill-health, which upset the balance of thyroid secretion, may equally disturb the functions of the parotid and its fellow salivary glands?

Hence thyroid deficiency may be frequently, though not necessarily always, associated with parotid deficiency, and also with defective action in the other salivary gland.—*British Dental Journal*.

(This article is expected to be continued in the July number.)

HOW CAN THE SCHOOLS EDUCATE A PEOPLE TO TAKE CARE OF THEIR TEETH, AND THEREBY INCREASE THE WEALTH OF THE NATION?

BY PROF. DR. JESSEN, STRASBURG, ALSACE

(Translated by F. E. Dodge, D.D.S., Strasburg)

IN the *International Archive for Public Mouth Hygiene*, pamphlet 3, June, 1911, Dr. Phil. Otto Volz, member of the Commercial Statistical Advice, of the Imperial Statistical Bureau in Berlin, asks, "How must a people pay for the non-use of the toothbrush?"

He shows that in Germany, of the nearly 65,000,000 inhabitants, only one fifth (13,000,000) give regular attention to their teeth and go to a dentist. Of the remaining 52,000,000 people, at most 10 per cent. (5,000,000) possess a toothbrush. According to that, 47,000,000 people in the German Empire do not know what it is to clean their teeth! This number practically agrees with authorities who estimate that at most 18,000,000 to 20,000,000 toothbrushes are used yearly in Germany.

By very careful estimation, placing the figures low, Dr. Volz further reckons that German workmen and women, together about 40,000,000 people, spend about 220,000,000 marks yearly for food from which their bodies in no way benefit, on account of the bad condition of their teeth allowing food of that value to pass through the system without being digested—at that, a loss of only $1\frac{1}{2}$ pfg. of food per day per person is reckoned.

To be added to that is loss of days of work or premature loss of capacity to work due to stomach and intestinal troubles, anemia and under-feeding, due to bad teeth. At the low estimate of a loss of $3\frac{1}{3}$ days a year per workman, 30,000,000 men lose 100,000,000 days, which, at fifty-six cents a day, makes a pecuniary loss of \$56,000,000. By including sick-fund expenditures, invalid and old-age insurance,

and other calculations too numerous to mention here, a total loss of 645,000,000 marks yearly is reached.

The general establishment of rational care of the teeth, combined with timely and regularly recurring dental treatment, would in time reduce the decay of the teeth one half. By that means \$86,250,000 would be saved, from which, however, would be deducted the expense of establishing dental treatment, including the salaries of 5,000 to 6,000 dentists and the expense of their preparatory dental study, amounting to \$34,000,000.

Of the \$52,000,000 saved, about \$46,000,000 would be saved to German workmen, \$3,750,000 to the authorities, and \$2,500,000 to employers. To save these \$52,000,000 systematic dental care is necessary. What is the surest and quickest way to gain this end?

As Dr. Volz correctly says, by following out the plan of the German Central Committee for care of the teeth in the schools—examination of the children entering school, prompt attention in the school dental clinic, and instruction by the teachers in the schools, is doubtless the best way. As a result, care of the teeth is introduced into the homes. Aside from that, in the free clinics, part of the grown people receive explanations and instructive written advice teaching the value of the teeth. The army recruits see the value the military place on the teeth. The press, in a praiseworthy and disinterested way, supports all these efforts. But still, it is found by experience, that through teaching alone little progress is made.

What way, then, shall be chosen to win over 47,000,000 people to take care of their teeth and save the before-mentioned \$52,000,000 yearly to them?

Naturally, it cannot be accomplished all at once; it must be slowly, gradually—but it must be done. They must be won, for a pronounced improvement in the health of the people means an increase in the capacity of the people and increase in the wealth of the nation affected thereby. They can be won if the schools take a greater interest in the work, if they not only teach but carry out practical care of the teeth. The schools must take a step forward.

In Strasburg the public schools have taken this step. Here, twice a year, statistical reports are made of the dental treatment of children in the public schools.

If all the schools of the German Empire, city and country, follow this example, and dental treatment is introduced in them, in a few years rational care of the teeth will be general, and thereby much will gradually be added to the wealth of the nation.—*Internationales Archiv für öffentliche Mundhygiene.*

SOCIETY AND OTHER NOTES

Officers of Societies are invited to make announcements here of meetings and other events of interest.

CALIFORNIA.

The next Annual Meeting of the California State Dental Association will be held June 2-5, 1913, in the Hotel Oakland, at Oakland, Cal.—E. E. EVANS, *Secretary*.

The Sixteenth Annual Meeting of the Southern California Dental Association will be held in Los Angeles, May 26-29, 1913.—JAMES D. MCCOY, *Chairman Publicity Committee*.

The next examination by the Board of Dental Examiners of California for license to practise dentistry will be held in San Francisco on June 7, 1913. This will be followed by an examination in Los Angeles, beginning on June 20, 1913.—C. A. HERRICK, *Secretary*.

COLORADO.

The Twenty-seventh Annual Meeting of the Colorado State Dental Association will be held at Manitou, June 19-21, 1913. The clinics will be in charge of Dr. A. W. Starbuck, 1340 Arapahoe Street, Denver, Col., who will furnish any information relative to same. All ethical members of the profession are cordially invited to attend the meeting.—C. A. MONROE, 302 Mercantile Bank Bldg., Boulder, Col., *Secretary*.

CONNECTICUT.

The Dental Commissioners of the State of Connecticut hereby give notice that they will meet at Hartford, June 12-14, to examine applicants for license to practise dentistry, and for the transaction of any other business proper to come before them.—D. EVERETT TAYLOR, *Recorder*.

DISTRICT OF COLUMBIA.

The Annual Meeting of the National Dental Protective Association will be held at the Fredonia Hotel, Washington, D. C., May 20th, at 7.30 P.M., for the election of trustees and transaction of business.—E. P. DAMERON, *President*; M. F. FINLEY, *Secretary*.

GEORGIA.

The Forty-fifth Annual Meeting of the Georgia State Dental Society will convene at Columbus, Ga., June 12-14, 1913, beginning Thursday, June 12th, at 11 A.M. Some very interesting lectures and papers will be presented, also an elaborate clinic has been secured.—M. M. FORBES, Atlanta, *Secretary*.

ILLINOIS.

The Thirteenth Annual Meeting of the American Society of Orthodontists will be held in Chicago, June 30-July 2, 1913.—FREDERICK C. KEMPLE, 576 Fifth Ave., New York City, *Secretary*.

INDIANA.

The Fifty-fifth Annual Session of the Indiana State Dental Association will be held at the Claypool Hotel, Indianapolis, May 20-22, 1913.—OTTO U. KING, *Secretary*.

The next regular meeting of the Indiana State Board of Dental Examiners will be held in the State House at Indianapolis, beginning Monday, June 9th, at 9 A.M., and continuing to Saturday, June 14th. All applicants for registration in this State will be examined at this time. No other meeting will be held until November. No temporary licenses are issued.—F. R. HENSHAW, Pythian Building, Indianapolis, *Secretary*.

IOWA.

The Fifty-first Annual Meeting of the Iowa State Dental Society will convene at Davenport, Iowa, May 6-8, 1913, beginning Tuesday, May 6th, at 9 A.M.—C. M. KENNEDY, Des Moines, *Secretary*.

KENTUCKY.

The Forty-fourth Annual Meeting of the Kentucky State Dental Association will be held at the Phenix Hotel, in Lexington, Ky., on May 26-28, 1913. All ethical dentists are invited to attend.—C. R. SHACKLETTE, *Secretary*.

MAINE.

The Forty-eighth Annual Meeting of the Maine Dental Society will be held on June 25-27, 1913, at Cushing Island, Portland Harbor, Maine.—I. E. PENDLETON, *Secretary*.

MISSOURI.

The Alumni Association of the Washington University Dental School (Missouri Dental College), St. Louis, Mo., has decided to withdraw the annual clinic for 1913, owing to the proximate date of the next session of the National Association at Kansas City, Mo.—R. H. MILLER, D.D.S., *Chairman Publicity Committee*.

The next Annual Meeting of the National Association of Dental Faculties will take place at the Hotel Baltimore, Kansas City, Mo., beginning at 10 A.M. on Friday, July 4th. The Executive Committee will meet at 9 o'clock on the same morning at the same place.—B. HOLLY SMITH, *Chairman Executive Committee*.

MONTANA.

The Montana State Board of Dental Examiners will hold their Annual Session in Helena, Mont., July 14-17.—G. A. CHEVIGNY, Butte, Mont., *Secretary*.

NEBRASKA.

The Thirty-seventh Annual Meeting of the Nebraska State Dental Society will be held in Omaha, May 12-15, 1913.—WM. A. MCHENRY, *Secretary*.

NEW JERSEY.

The Forty-third Annual Convention of the New Jersey State Dental Society will be held in the Beach Auditorium at Asbury Park, N. J., July 16-18, 1913, beginning on Wednesday, July 16, at 10 A.M.—EDWIN W. HARLAN, 47 Crescent Ave., Jersey City, *Secretary*.

NEW YORK.

The Forty-fifth Annual Meeting of the Dental Society of the State of New York will be held at Albany, N. Y., Thursday, Friday, and Saturday, May 8, 9 and 10, 1913. The literary program of the meeting will be rendered in the Auditorium of the Educational Building.—A. P. BURKHART, *Secretary*.

NORTH CAROLINA.

The next regular meeting of the North Carolina State Board of Dental Examiners will be held in Winston-Salem, N. C., on May 26th. For further necessary information address F. L. HUNT, Asheville, N. C., *Secretary*.

OHIO.

The Fifty-sixth Annual Meeting of the Northern Ohio Dental Association will be held at Cleveland, Ohio, June 5-7, 1913.—C. I. PECK, *Secretary*.

PENNSYLVANIA.

The Fiftieth Anniversary Meeting of the Susquehanna Dental Association of Pennsylvania will be held at Irem Temple, Wilkesbarre, Pa., May 20-22, 1913. All ethical practitioners are invited to attend. Executive Committee, Drs. A. E. Bull, T. W. Thomas, W. E. Davis, B. A. Courtright, A. J. Heffernan, T. L. Davenport, of Wilkesbarre, Pa.; A. B. Miller, Kingston, Pa.; I. H. Jennings, of Danville, Pa.—E. J. DONNEGAN, *Recording Secretary*.

The next regular examination of the Pennsylvania State Board of Dental Examiners will be held in Philadelphia and Pittsburgh on June 11-14, 1913. Application blanks can be secured from the Department of Public Instruction, Harrisburg.—ALEXANDER H. REYNOLDS, 4630 Chester Ave., Philadelphia, *Secretary*.

SOUTH CAROLINA.

The Forty-third Annual Meeting of the South Carolina State Dental Association will be held on The Isle of Palms, June 25-27, 1913.—W. BUSEY SIMMONS, Piedmont, *Recording Secretary*.

SOUTH DAKOTA.

The Thirty-first Annual Meeting of the South Dakota State Society will be held at Watertown, So. Dak., May 13-14, 1913.—A. O. STUTENROTH, Watertown, So. Dak., *Secretary*.

TENNESSEE.

The Tennessee State Dental Association will hold its annual meeting in Nashville, June 5-7, 1913.—C. OSBORNE RHEA, Nashville, *Secretary*.

TEXAS.

The Thirty-third Annual Meeting of the Texas State Dental Association will meet at Temple, Texas, May 15-17, 1913. For further information address J. G. FIFE, *Secretary*.

The next regular meeting of the Texas State Board of Dental Examiners will be held in the High School Building, Houston, Texas, beginning Monday, June 23, 1913, at 9 A.M. Official application blanks and other necessary information will be furnished candidates upon application to the Secretary, C. M. McCauley, Abilene, Texas.

VERMONT.

The next meeting of the Vermont Board of Dental Examiners, for the examination of candidates to practise in Vermont, will be held at the State House, Montpelier, June 30, 1913, continuing four days. Application must be in the hands of the Secretary not later than June 20th. For information, apply to GEORGE F. CHENEY, St. Johnsbury, Vt., *Secretary*.

VIRGINIA.

The Fifteenth Annual Meeting of the Southern Branch of the National Dental Association will be held at the Chamberlin Hotel, Old Point Comfort, Va., July 22-25th, inclusive. The Virginia State Dental Society will meet conjointly with the Southern Branch at that time.—THOMAS MOORE, Branch of National Dental Association.

WISCONSIN.

The Wisconsin State Board of Dental Examiners will convene in Milwaukee, at Marquette University, on June 16th, at 2 P.M., for examination of applicants to practise in Wisconsin.—W. T. HARDY, 422 Jefferson St., Milwaukee, *Secretary*.

NAVY DENTAL RESERVE CORPS

PROVIDED, That a Navy Dental Reserve Corps is hereby authorized to be organized and operated under the provision of the Act approved August twenty-second, nineteen hundred and twelve, providing for the organization and operation of a Navy Medical Reserve Corps, and differing therefrom in no respect other than that the qualification and requirements of the appointees shall be dental surgeons and graduates of reputable schools of medicine or dentistry instead of "graduates of reputable schools of medicine," and so many of said appointees may be ordered to temporary active service as the Secretary of the Navy may deem necessary to the health and efficiency of the Navy and Marine Corps, providing the whole number of both regular corps and reserve corps dental surgeons in active service shall not exceed in time of peace, one to each one thousand five hundred of the said personnel, and no dental surgeon shall render service other than temporary service until his appointment shall have been confirmed by the Senate: PROVIDED FURTHER, That Dental Corps officers of permanent tenure shall be citizens of the United States between twenty-two and thirty years of age, of good moral character, of unquestionable professional repute, and before appointment shall pass satisfactory professional and physical examinations, and when appointed shall take rank and precedence in the same manner in all respects as in the case of appointees to the Medical Corps of the Navy and shall receive corresponding pay and allowances and, when they reach the age of sixty-four years, be entitled to retired pay.

This is a copy of the original Bill, secured this date (March 20, 1913).

A TRUE COPY.

S. D. BOAK.

DR. G. W. CLAPP.

DEAR DOCTOR: In the interest of clean mouths, the Mouth Hygiene Workers of Wilkesburg, Pa., are taking the liberty of requesting you to make the following announcement through the pages of THE DENTAL DIGEST:

"The Mouth Hygiene Workers of Wilkesburg are undertaking to demonstrate the possibilities of a local laity journal devoted to the Mouth Hygiene Movement.

Our organization has a governing board composed of an equal number of teachers, philanthropic workers and dentists. We propose, in our first issue, to give the teachers', the philanthropic workers', the parents' and the dentists' views of the need of Mouth Hygiene. Our journal will be at least forty-eight pages, five and one quarter of eight inches, with art frontispiece printed in color illustrated by photographs of school children. A real laity magazine, supported by local advertisers and promoted by philanthropic workers.

Our school children are giving a May Day entertainment for the benefit of the Mouth Hygiene Movement. We wish to dedicate our journal and the entertainment will go into a Mouth Hygiene Workers' Fund for educational and charitable purposes."

We will be pleased to furnish any number of copies to any ethical practitioner or society at ten cents each.

Every community needs a local lay journal to arouse local interest in Mouth Hygiene. We need the money to demonstrate how it can be done.

Very respectfully,

J. L. ALLISON,

Superintendent of Schools.

W. M. FADDEN, D.D.S.,

Chairman Promotion Com.

MRS. MARY M. KELLERMAN,

Chairman Philanthropic Com.

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Sworn to and subscribed before me this
4th day of October, 1912.

HENRY B. PEIFFER,
(Seal) *Notary Public.*

PATENTS

- 1,030,856, Guard-sleeve for dental spindles, James H. Abbott, Philadelphia, Pa.
- 1,031,332, Artificial tooth, Leo E. Evelin, New York, N. Y.
- 1,031,533, Dental appliance, Wm. F. Davison, Richmond, Va.
- 1,031,737, Dental apparatus for removing wax from the teeth, Philip H. Sands, Lochgelly, Scotland.
- 1,031,808, Operating mechanism for barbers' chairs, Knut Moluf, Benson, Neb.
- 1,031,855, Mould for artificial teeth, Joseph Kohn, Philadelphia, Pa.
- 1,032,071, Blowpipe, Andre G. Le Chatelier, Marseille, France.
- 1,032,072, Blowpipe, Andre G. Le Chatelier, Marseille, France.
- 1,032,241, Attachment for dental lathes, Walter F. Richards, Quincy, Ill.
- 1,032,833, Dental cervical margin clamp, James W. Ivory, Philadelphia, Pa.
- 1,032,835, Ingot casting device, Frank L. Jamison, Pittsburg, Pa.
- 1,032,882, Cabinet and sterilizer, David L. Cloud, Greensboro, Ga.
- 1,033,022, Folding toothbrush, Frank B. Kress, Denver, Col.

Copies of above patents may be obtained for fifteen cents each by addressing John A. Saul, Solicitor of Patents, Fendall Building, Washington, D. C.

Correction.—In Dr. Loomis P. Haskell's article in April Digest, page 195, seventh line, "the rims are so near," should read "the pins are so near."